Becoming-rat: an examination of the politics of vermin

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Becoming-Rat:
An examination of the politics of vermin

Masters by Research in Geography

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Abstract

This Masters research is motivated by a twofold concern: to expand research into non-human animals in social and cultural geography, and to explore the possibilities of an anti-essentialist animal geography. Namely, this masters aims to use the Deleuzian tool of 'assemblage' as a means of understanding human and animal co-constitution. The focal point of this master's research is an exploration of the neglected politics of vermin, a markedly violent site of human-animal configuration. This is accessed in two ways: first through a cultural history of the rat, and then through studies of the use of different rat traps and devices used to kill, control or catch rats in Victorian and contemporary contexts. Moving from these devices, this masters demonstrates the different humans and rats constituted through the act of rat expurgation, and the way in which the act of rat transgression and eradication works to perform the boundaries of changing geographies.

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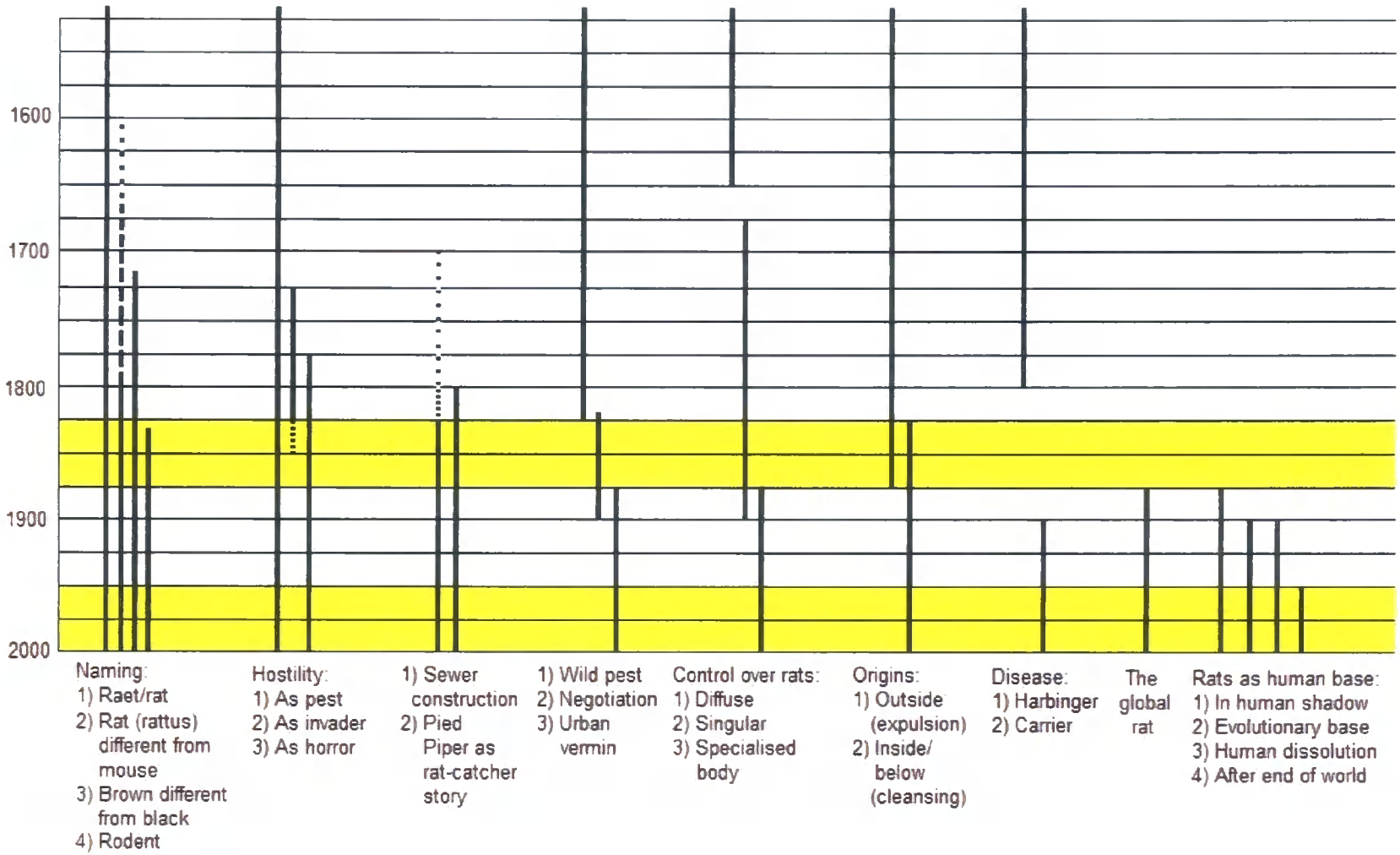


Figure One: Diagram illustrating several pivotal shifts in Western human-rat assemblages. The two coloured time periods indicate the historical contexts in which empirical chapters two and three take place.

Introduction – theoretical frameworks and methods

This chapter introduces the conceptual and theoretical bases for this projects research. It begins by inviting a possible tension in the literature between social constructionist and relational animal geographies, and moving from this briefly examine some of the challenges of doing justice to the question of animals in animal geography. The particular focus of this project is then introduced: that of banished animals and the perplexingly neglected politics of vermin. The chapter then introduces assemblage theory, the key conceptual framework for this project that will be used in the study of different rat eradication practices. The characteristics of assemblages are examined including some of the key features that distinguish it from other 'network' approaches, and its relationship with ethology is introduced, important for an anti-essentialist animal geography. The chapter then introduces the focus of this vermin geography: that of a genealogical study of rats in Western culture, and of an explication of the use of different rat catching devices that, through their use in practice, *constitute* different humans and rats. The chapter closes by drawing out how the different research methods were adopted and the empirical material addressed in light of the aforementioned stimuli and theoretical frameworks.

The place of the animal in animal geographies

"However one interprets it ... no one can deny this event any more, no one can deny the unprecedented *proportions of this subjection of the animal. Such a subjection, whose history we are attempting to interpret, can be called violence in the most morally neutral sense of the term" (Derrida 1997 pp 119)*

"Yet I cannot help the feeling that, even in the [geographical] texts where animals do make an appearance, there is still something missing: a sense of animals as animals*" (Philo 1995 pp 635)*

"It seems reasonable since ... men can make various automata which move without thought, that nature should produce its own automata ... These natural automata are the animals" (Descartes in Cottingham 1978 pp 553)

The role of 'nature' as a conceptual tool in geographical thought has recently been shaken up, enabling a radical rethinking of the placing of animals within the discipline. As a result there are animals now appearing in geographical work that are managed, spatialised, socially constructed, acting and transgressing, countering the all too long relegation of animals to the discrete spaces of nature, antithetical to the rational and social human (Wolch and Emel 1995). This revived nature questioning has taken place in the context of a number of theoretical approaches, also mirroring the various ways in which particular animal geographies can and have proceeded.

First, there has been a "de-naturalising focus on the non-human world" (Castree 2005 pp90), stimulating the development of a social constructionist account of "the matter of nature" (Fitzsimmons 1988), a space formerly pristine and exterior. By problematizing the act of representation of nature, this has created a setting for questioning the place of animals in limited ways, opening

them up to social forces that have implications for them. Animals when questioned in this broad way do not emerge as active, territorialising agents. Instead different constructions of animals rely on human production, making an animality that has nothing to say for itself (Whatmore 2003b).

Second, the discrete field of animal geography, small but long standing in the discipline, was revived in the 1990's (Wolch and Emel 2003). Like the earlier field, this geography examined nature-culture dynamics. Examples of this heritage speaking through research include Emel's 1995 ecofeminist study of 'wild' wolf eradication, and Kay Anderson's 1995 article examining the culture-nature dynamics in zoo spaces. Importantly however the revived field rejected some of the assumptions of the previous school, including its relegation of animals to a field of objects, unresponsive and part of the 'bedrock' of nature. Instead, there was now an emphasis toward making animals emerge as active agents, fashioning the *social* life in which they take part.

Third, there have been recent vocal efforts within the discipline towards a relational geography that rejects culture-nature frameworks in favour of a more heterogeneous concept of the world (Castree 2005). Sometimes labelled 'hybrid', 'after nature', 'non-representational' or 'actor-network' approaches, these studies emphasise the entangled and co-constituted nature of the world against that of a dualist ontology (Thrift 1999; Murdoch 1997; Latour 1993). By focusing on "promiscuous" engagements between natures and spaces, humans and non-humans, many of these geographers have often elaborated on the ways in which non-humans *act* in the business of social life, arising from a radical reformation of social agency (Whatmore 2003a; Lorimer 2006; Whatmore and Hinchliffe 2003).

The post-nature approaches provide the greatest conceptual framework for this project, but it is the animal geography move that proves to be the greater stimulus. Sarah Whatmore judges this area, in taking up questions of the particular agency of animals and questioning the very 'human' of human geography, "one of the most radical efforts in cultural geography" (Whatmore 1999 pp166). In its effort to awaken concerns for animal treatment, both

politically and ethically, and its valuation of particular animal abilities against the grain of centuries of anthropocentrism, this field invariably seeks recourse in other fields of significant animal renegotiation (see Philo 1995; Wolch and Emel 2003). Animal ethics is invariably keen to speak of fully formed animal life; that is, animals that possess certain long ignored abilities that they bring *to* situations (such as intentionality, agency, interests, even the capacity for resistance: Wilbert 2000). These inherent capacities have been tragically and violently denied, and many vocal proponents have in recent years aimed to move elements of the rational human liberal individual wholesale onto particular non-human bodies. This has included the capacity for language, tool use, self awareness, intentionality (Cavalieri et al 1993; Dawkins 1998; DeGrazia 1996), and capacities to suffer and experience emotion (Goodall 1971; Singer 1976; Masson 1996). This is a radical project given the history of anthropocentric thinking across the Western tradition, but this masters notes the essentialist move here in speaking of 'capacities', an approach that will be avoided and examined in more detail later.

In this stead, the animal geography project proceeds in three ways. First the overarching aim is to "bring animals back in" (Society and Space 1995 special issue) to the research process, refusing to characterise the social world as a solely human affair (Wolch and Emel 2003). Animal Geographies therefore focus on human-animal relations, as they are shaped through social practices and meanings enacted by both parties. Towards this end, some animal geographers have called for a "transspecies urban theory" to account for these neglected interactions, particularly ignored in urban spaces (Wolch, West, Gaines 1995). In animal geographies, animals act through spaces of culture *and* nature, unsettling them and making "beastly places" (Philo and Wilbert 2000 pp 24).

Second, animal geographers also invariably aim to reignite "a sense of animals *as animals*" (Philo 1995 pp 635). The concern here is to do justice to questions of the animal by rethinking animal agency, avoiding an anthropocentric geography of "humans in relation to animals" (Philo and Wilbert 2000 pp 5). A

great deal of thought therefore surrounds the extent to which animals can be said to resist spatial orderings (see 1997 conference 'Animals, Agency and Geography'). Agency here (without wanting to ignore the considerable attention given towards avoiding anthropocentrism in this research area) is mapped *onto* the animal from human social sciences by thinking of animals using the same tools as human social phenomena and bodies. A key example of this is Philo's understanding of animal geography as a perspective that regards animals "as a marginal 'social' group" (Philo 1995 pp 638).

Third, and finally, there is invariably an ethical dimension to many of these studies. Many animal geographers speak of human-animal spaces as "a moral landscape" (Proctor 1998), or even as spaces yet to come as described by Wolch and Emel: "our political project is the creation of many forms of shared space" (Wolch and Emel 1995 pp 632). The task of bringing the animals back in is therefore ethically motivated, and is one of both awakening and forging the sense of trans-species urban space (Wolch, West, Gaines 1995).

There are a number of key works that demonstrate this threefold move in animal geographies, many of which were released in the 1995 special issue of Society and Space, or published in the two collected volumes entitled "Animal Geographies" (Wolch Emel 1996) and "Animal Spaces, Beastly Places" (Philo and Wilbert 1995), collections that originated in the social geography conference on "Animals, Agency and Geography". Through these publications, diverse sites of human-animal interaction have been examined. Griffiths (et al 2000) examined the conflictual politics of feral cats as they inhabit the city, bringing into play ambiguous attitudes towards nature and wilderness through their refusal to occupy their proper place on the "fringes of civilisation" (pp59). Woods (1995) addressed one of the most controversial issues in British politics in an examination of the multiple representations of hunted foxes. By outlining how these various representations deeply conflict, Woods demonstrates the representational move that 'speaks for' the fox in the mobilisation of different political force. Other sites of the human-animal include: a study of Victorian dog-

stealing and how the resulting moral alarm was intimately connected with politics of the gendered home (Howell 2000); the right of thirst for cattle in Islamic law and different geographical contexts (Wescoat 1995); displays of wildlife in colonial hunting photography (Ryan 2000) and the zoo (Gruffudd 2000; Davies 2000). The largest subject areas, by number of articles, are "the disputed nature of conservation", and practices of domestication and consumption. This has included the place of wolves (Brownlow 2000; Emel 1997), fish (Waley 2000), golden eagles (Michel 1997) and cougars (Gullo et al 1995) in disputed conservation landscapes, and pigs (Ufkes 1997) and cattle (Anderson 1997; Robbins 1995; Yarwood and Evans 2000).

Through these diverse studies, the threefold concerns outlined above are pursued. Nonetheless, this masters notes that all the articles take place to varying degrees within a social constructionist vein. Indeed this is put unambiguously by Wolch and Emel who explain that the project of animal geographies is to "focus on animals' role in the *social construction* of culture and individual human subjects" (Wolch and Emel 2003 pp188 emphasis added). In this way, although all of the articles to different extents play a figure of an animal that emerges as an active agent fashioning to various degrees the environments it inhabits, this takes a relative backseat in favour of an explication of the ways in which animals are caught up in distinctly linguistic or cognitive *human* orderings. In this light the animal geography focus on animals in conservation and domestication stems from the constructionist approach of examining discourses *on* animals, largely ignoring any particular animal action. An example of this is Griffiths' cat-as-pet whose resistance from categorisations of domestication and nature in domestic space is in the form of being 'thought' by pet-owners that "they will retain some of their wildness" (Griffiths 2000 pp58). This masters considers this to be a weakness of the animal geographies' attempt to "bring the animal back in" (Wolch and Emel 1995 pp632), and is keen for a more effective approach to counter geography's anthropocentrism.

Furthermore many of the studies examine configurations of human-animal that lend themselves easily to criticism. An example of this is the way in which

Emel's (1995) wolf already occupies an ambiguous position in the conservation landscape, being both eradicated and re-introduced by different human parties. As a result of the social constructionist approach, the cultural meanings 'placed on' animals are examined for the way in which they demonstrate the assertion of a nature that is not a material reality. In this way, there are relatively few examples of critical animal geographies of disruptive animals – those animals whose place and action is troublesome in most of the discourses used to address them.

With this in mind this masters turns to explore the neglected politics of vermin, nearly entirely ignored in social and cultural geography. These animals (including the pigeon, bat, bee, mouse, and in the case of this project, the rat) do not so easily open themselves up to immediate cultural criticism; their place is almost incontestable – when encountered, they are expunged. Pursuing a transspecies urban theory that seeks to valorise or even make "a territory, space and place for [these] animals" (Philo and Wilbert 2000 pp 24) is a dead end task when the logic of vermin control is precisely to not let this happen. Nonetheless, the rat in particular occupies an extremely interesting place in Western culture; it is a violently affectual and resonant figure, able to infest diverse contexts (literary and non-literary), spreading anxiety and moral outrage wherever it travels (Burt 2006). Rat performances, which include the simple presentation of rat bodies or their traces (as holes or teeth marks) to human eyes, carry a resonance that mobilises a plethora of practices surrounding control or eradication of, or protection from, rat actions and bodies. Even from a limited transgression, rats create a situation so upsetting for western home and commercial spaces that they must eradicate the possibility of rat transgression ever happening again; all *traces* of rats must be expunged, and its existence in a wide range of geographical contexts must be negated. Towards this end they are caught up in astonishingly laborious processes to separate the spaces of the rat and human, practices that get to the heart of public, private, urban and natural performances. Popular Western imagination keeps rats in a near mythic status, yet the whole plethora of banished animals has been relatively untouched by social and cultural

geography. Even though rats so profoundly act in social life, it seems that animal geographies have avoided putting vermin as the animals they are ("animals as animals" Philo 1995 pp 657) back into social research because their acts are so irrevocably and universally objectionable.

Rats get to the heart of the deep anxieties arising from disruptive animality - animals that refuse the pervasive efforts aimed at exteriorizing them to cultures' 'outside' (Wolfe 1998; see also Philo 1995 for a geographical study of this process). In this context, links cannot be forged with the rat towards engagements of cohabitation - this is unthinkable. 'Merely' questioning the exteriorisation of nature is not enough an ethical move to unsettle present human-rat engagements. This neglect of the politics of vermin will be returned to, but now the chapter turns toward recent studies of animality that do not operate in the field of social constructionism. In so doing, they offer unique tools to get to grips with questions of the animal and avoid essentialism (valuable for questions of vermin), but also present further challenges to the field of animal geography.

Relational geographies

As highlighted in the opening of this chapter, this research takes significant recourse in a host of what are often called 'relational', 'anti-essentialist' or 'post-structural' thinkers outside the discipline, and what Castree calls the "post-natural" approach within geography (Noel Castree 'nature' pp223). This burgeoning field draws influence from a range of relational thinkers, including Bruno Latour's Actor-Network Theory (Latour 1993; 1999), Donna Haraway's conceptual tools of hybridity and the cyborg (Haraway 1991; 1997), and Deleuzian theories of difference and identity (Deleuze 1994). These are markedly different from social constructionist approaches in their ontological presuppositions, being especially hostile to categorical dualist ontological

divisions of culture and nature and approaches that see differences deriving from identities. Instead of a culture-nature dualism, entities are the products of their relating, stable moments in the coming-together of heterogeneous assembled materials. Relational geographies also seek an inversion of the traditional metaphysical distinction between differences and identities (where differences exist as a product of ontologically primary identities), instead seeing identities as stabilised difference. Putting the animals "as animals" (as the animals they are) back into social research is therefore an empty cause, not being faithful to the multiple ways in which animals, like all materials, are able to become, products of temporary situational connections (Murdoch 1997).

These theories in so many ways challenge the foundations of the previous approaches, and in so doing provide many marked advantages for an animal geography. First, categorical and binary distinctions between humans and animals are problematised; instead, the properties of things are blurred. This undoes normative claims of humans and animals towards a focus on internal differences, especially important for a geography of vermin; instead of seeing vermin animals as 'naturally' unruly, situational approaches emphasise the contextual ways in bodies *become* vermin, away from universal characters.

Second, and as a result of the first, agency is afforded to a wider range of actors; all materials are given a causal role in networks and processes of engineering. Agency here is therefore not a property of certain privileged beings, but the product of networks of association. This displaces humans as the logical source of social formations, radically opening up the field of social study to a previously neglected field of supposed unfeeling non-corporeal objects, a field in which animals have long been included. In this way, Donna Haraway's genetically modified OncoMouse is not a unilateral intentional 'construction' by certain humans, but is instead the product of a network of both human and non-human instruments, all of which have agency and are indispensable to the making of what is (Haraway 1997).

Third, the focus of study is moved toward the multiple pre-personal forces that characterize regimes of power. With this theorization of power, different

spatial organizations of animals do not arise on the basis of a particular human logic. Instead, they are formed through strategies, practices and techniques that create such subjectivities and bodies as an effect of such power relations. This therefore brings a study of vermin towards techniques or practices of power, especially on the ways in which rats enact or are pulled into a realm of action.

Fourth, the process and politics of representation that characterises much animal geography is deeply problematised and unseated as the primary mode of engaging with the social. With representational approaches the prerogative is often to tease out the truth of external reality from false discourses, or less radically in the case of animal geographies, to merely show the ways in which different linguistic cultural meanings are placed 'on' animals. Instead of this discursive focus non-representational approaches, although they do not *deny* processes of representation, shift emphasis towards practice – the practical ways in which bodies are performed. This de-centring of the linguistic in accounts of the social is especially useful for radical animal geographies – a linguistic conception of the world invariably and continually excludes animals from having creative power in human-animal encounters. Furthermore, non-representational approaches seek to highlight the ways in which entities are *made* through different modes of representation or practice. In this way, animals are not represented in literature about them, because there is no inherent character of them, or even particular animals, to represent; *being-animal is not a being at all.* Instead, animals are made, or figured, through practices in which they are involved, so the prerogative is to focus on these practices or assemblages of particular human and animal actants.

These relational approaches have informed a number of recent geographical studies within which different animals have come into the open. Perhaps the most notable of these is Sarah Whatmore's 'Hybrid Geographies', in which a plethora of supposedly wild and exteriorised animals instead perform through various spatio-temporal "wildlife networks"; these lend them to be routinely caught up in human social practice through a variety of often bloody and

spectacular engagements. Her most detailed animal study concerns elephants as they are constituted through two different wildlife networks – that of the zoological collection and that of the protected elephant 'in the wild'. In these studies, bodily performances of the elephant take precedence as part of the practice of "becoming elephant" – an animal is therefore not posited that is unresponsive to human spatial orderings, resisting any notion that these wildlife configurations are simply mapped 'onto' the elephant body. Instead, any notion of the elephant takes place through the networks in which they are caught up.

Whatmore has also joined Steve Hinchliffe in various papers on "urban wilds" (Hincliffe, Kearnes, Degen, Whatmore 2005). In their examinations of various engagements with urban natures, these studies delve into different techniques of diagramming animals (including water voles, badgers). Here, these diagrams of animals are not representations mapped onto a material reality, but are instead means techniques used to enliven material engagements with variously figured animals. Furthermore, running through these urban wilds studies is an ethical concern towards making cities "liveable", and demonstrating engagements that enable co-habitation. This anti-essentialist ethical move does not proceed by reclaiming some capacity of the animal to value, but by awakening concern with networks in which animals are caught, especially those that rely on distinctions between the urban and the wild (for this move, see especially Whatmore 1997 but also Hinchliffe, Whatmore, Degen, Kearnes 2003).

Although relational approaches enliven animal geographies they nevertheless, in their anti-essentialism, create a number of possible difficulties for an animal-centred geography.

Above all, the various foundationalist lines (especially in animal ethics, see Regan and Singer 1989) through which animals can be radically championed as worthy of social analysis are impossible given the aforementioned ontological presuppositions. The question of animal intentionality, agencies and especially capacities, as was the concern of the major conference on animals in the 90's, is

a redundant approach. Instead agencies and capacities are products of relation; bodies do not 'possess' them. In this way agency is radically redistributed, the product of many different kinds of non-sentient materiality (Murdoch 1997). This problematises rather profoundly a great deal about the animal geography project: do we lose something when we can't put the animals "as the animals they are" (a dead-end task) back into social theory? In fact, in much the same vein as second-wave feminist criticisms of such approaches, it seems that animals here are being relegated back into the realm of objects just as they are being taken out of it in other areas (such as liberal rights-based law and through foundational ethical claims).

There are a number of ways in which relational geographies frame their ethical considerations, but each of these is deeply problematic for questioning vermin. One main move is an emphasis on the connections and the mixing of ontologies and agencies between humans and non-humans. This recognition is thought to bring about a 'generous' ethics in which few assumptions are made about which group of bodies does or does not deserve ethical consideration, making various human-animal relations more bearable (see Antipode 2005; Hincliffe 2005; Whatmore 1997). With a relation as hostile as the rat, it is difficult to see how this recognition is enough.

A second move is the emphasis on making cities more liveable for a wider range of beings and subjectivities (Hinchliffe and Whatmore 2006). The onus is on asserting that animals are irrevocably part of the urban, and to this end they should not be continually placed as outsiders to these spaces, countering much of the traditional practice of removing natures from urban spaces. Despite the huge successes of the rat in doing precisely this, an ethical move to make cities *more liveable* for rats is extremely redundant within the politics of vermin. Seeking "conviviality" (Hinchliffe and Whatmore 2005) with the modern rat, a being whose body (including traces) are so laboriously separated from spaces of human habitation, would be a near impossible move in its radicalism. This co-habitation as an ethical move is not just in relational geography's remit, permeating also much animal geography. Philo and Wilbert state that animal

geographies will demand that humans "desist fixing animals rigidly into our spatial orderings, and instead will ask us to allow animals more space: to grant them more room ... and to furnish them with more ecological resources within human settlements" (Philo and Wilbert 2000 pp25). This masters need not explicate how this task quite effectively excludes the rat entirely.

In trying to find effective means of engaging with the specifics of the co-constitution of various human-animals, and of tackling effectively the particular question of the animal and avoiding anthropocentrism, this masters seeks to take questions of animal sensibility, emergent corporeal capacities, and particular expressive powers seriously. There are a number of ways of ensuring this, including the positing an animal that 'speaks back' in the process of human-animal constitution (for this move, see Hinchliffe et al, 2005). Nonetheless this could perhaps be more effectively engaged with though considering the *phenomenological* questions of particular animals. Here, recourse could be to with the growing literature on animal worlds, sensate capacities and consciousness, making central the particular agencies and performances of various animals in human-animal relations. Toward this end, the continental thinkers that have so helped influenced relational geographies can be divided into two 'approaches' to questions of ontology. First there are the phenomenological thinkers such as Heidegger (2001), Merleau-Ponty (1962) and Bourdieu (1990), less considered by relational geographies, whose questions of the subject take precedence. And second there are the situational and explicitly ontological approaches in continental philosophy, including the aforementioned Deleuze, Haraway and Latour. These thinkers take to task a reformed materialism in explications of the various comings-together of materials in the business of social life. It is noted here that relational thinkers in geography, when making post-natural studies of nature-culture relations, and especially when considering questions of the animal, take greater recourse in situational approaches to these ontological questions. Indeed, questions of the animal

could be considered an emergent effect of a project of expounding the ways in which multiple previously non-animate materials act in social life, and not necessarily from a project of questioning the particular materialities of animals.

This anxiety about anthropocentrism and considerations of an 'animal phenomenology' as a resolution to these problems, as a means of grasping the actions of animals, is particularly expressed by Philo. In his 1995 article, very early on in the field of animal geographies, he states that the question of animal phenomenology "urgently needs more sustained consideration, perhaps by consulting emerging literatures on 'animal consciousness'" (Philo 1995 pp 664). Philo nonetheless divides the process of animal constitution into their "psychobiological makeup" (perhaps a prediscursive body) and their "discursive constitution" (which is placed on the psychobiological unit).

Although many relational geographies grapple the question of particular animal performances and sensibilities effectively (see "Herding memories of humans and animals" that extremely effectively centres on animal doings, such as the particular means of the bodily movement of reindeer (pp 499), or means of direct communication with herders (pp 504): Lorimer, H. 2006), animal geographies invariably fall folly to not elucidating animal performances. We often find that there is a focus on 'human' intentions and actions, with a nod reserved for positing that, somewhere, in some unmentioned put ever-present way, animals are, reactionary, sentient, or doing some of the work of the performance of certain relationships. Griffiths, Poulter and Sibley posit this move explicitly in their elucidation of the project of animal geography as being one of emphasising the "particular cultural and historical contexts [of] animal categorisations", leaving room for the ways in which animals "may resist categorisation" (Griffiths, Poulter, Sibley pp58). This resistance is rarely developed, which leads this masters to ask: is the animal really in the research process? Indeed, Philo in his acknowledgment of this problem and prescription of an animal phenomenology as a way out of this, instead notes that "it only really the second [animal discursive constitution] manoeuvre that I intend to pursue [here]" (Philo 1995 pp 664). Although this leads to an extremely effective critique, writing a history of

the material separations of animals from cities that is extremely useful to this project, this masters simply notes the 'realm of discourse' that is politely kept to in nearly all animal geographies.

With these concerns in mind, this masters aims to illuminate animal acts and think through specific bodily performances that take place in various networks, a means of countering both anthropocentrism and the reliance on discursive constitutions of humans and animals. Although this masters will not fully explore an animal phenomenological route (which, as Philo explains, is difficult in social human geography), this masters will pursue a relational geography that seeks to awaken the particular question of the animal in an effective way.

Following these questions and concerns, this chapter now makes moves towards assembling a methodology that will illuminate these research questions. This takes place along a twofold axis: the first, as covered here, is the aim of witnessing and enlivening non-human life in general. Towards this end, this masters will study human-rat co-constitution in order to demonstrate how rats and other non-human animals *perform* certain spatial orderings. Second, this masters also aims to take the animal geography approach by critiquing the place of the rat through an emphasis on genealogy. This masters hopes that by emphasising the multiple ways in which rats have *become* in western history, resulting from particular historical contingencies and changes, that this will make a space for criticising the place of vermin.

These tasks are nonetheless difficult in an animal geography of vermin. This masters aims to critique both a history and relation (through a genealogy), demonstrating how rats are central to the production of a particular spatiality that is not pregiven, criticising the terms in which rats come into relation. Nonetheless with rats it's a difficult project because they're such a profoundly sedimented animal; unlike many genealogies there are few instances of becoming otherwise, only different orders of eradication. This masters also intends to make moves towards understanding the limiting contingencies for

human-rat conviviality, but this is challenging given the profoundly laborious practices for removal and characterisation of space in which the rat is caught.

With these issues in mind, this chapter now turns towards the theoretical frameworks that this masters will use to assemble a methodology and research focus that will be suitable for addressing these concerns.

Assemblage – relation to 'network' and 'ethology'

A growing cohort of human geographers have made recourse in recent years with network-style approaches to studies of the social and cultural networks of association. In the most part these have been a response to the work of Nigel Thrifts non-representational theory, itself a theoretical synthesis of, among others, the various anti-essentialist approaches touched upon in this chapter (Thrift 1996). One of the main approaches in part brought in by Thrift to the discipline was the set of resources provided by Actor-Network Theory, including that of conception of the world constituted by 'networks'. Actor-networks are characterised by a number of principles, especially useful for addressing a non-dualistic conception of culture and nature (Latour 1993). Instead of a dualistic ontology, network approaches emphasise a world composed of diverse associations of heterogeneous materials. Materials here accounts for an astonishing range of entities, linguistic and non-linguistic, semiotic, chemicals, institutions, natural and cultural bodies, human and non-human (Murdoch 1997b). With network approaches, these phenomena lose their 'boundedness' instead being constituted by their association to other materials in a network – actor-networks emphasise the role that movement or 'traffic' along networks plays in the constitution of entities. It is through this repeated traffic that actor-networks become durable; non-representational and network approaches therefore emphasise the repeated *doing*, the performance or expression, in the constitution of bodies (Thrift 2000). Partly as an outcome of this, network geographies drastically move away from the interpretive models of

social science towards an emphasis on things in the making. The focus on a wide range of materials and their agencies also offers a conception of the (social) world that is not made solely by discursive phenomena, instead being the working of the "material-semiotic" (Haraway 1991).

Actor-networks, being of a similar heritage, share many of the characteristic principles of Deleuzian concepts, especially that of the assemblage. This conception of the social will be used to animate the human-animal co-constitutions and practices engaged with by this masters, and elements of this model therefore require some elucidation.

The assemblage in Deleuzian writing, in many ways synonymous with the concept of the rhizome (Peet 1998), is similar to actor networks in its commitment to relationality, the heterogeneity and diversity of its acting components, the multiplicity of connections and possible connections, and the emphasis on discontinuity and continuous variability (Doel 1996). Nonetheless, the assemblage is explicated through its own distinctive register and set of concepts.

Assemblages or "intensive networks" (Bonta and Protevi 2004 pp 54) are systems that imbricate strata and entangle materials, and in so doing assemblages have emergent (and intensive) effects on the basis of the properties of these entanglements. In Deleuzian theory these components of assemblages, or materials, elements, are 'captured' by assemblage systems (Bonta and Protevi 2004). In this capture, the distinctiveness of the components is preserved; they are not amalgamated and subsumed. These units of relative stability can be a wide range of entities, cultural and natural, human and nonhuman, bodies and signs, discrete flows of a limitless range of materials (knowledge, people, signs, chemicals, institutions). Assemblages link these bodies in the formation of 'territories'.

A term used in Deleuzian theory, perhaps key to the character of this concept in its illustrating of the coming-together of heterogeneous parts, is the notion of 'singularity'. This does not mean 'singular', referring to the bodies that form the content of assemblages; singularities are pre-personal and constitute

bodies, not vice versa (Ansell Pearson 1999). Singularities are points of fusion that lead to the formation of bodies, again emphasising the inversion of the traditional metaphysical relation between difference and identity discussed earlier. Singularities mark not only the ontological specificity of a component, but also characterise its field of potential; assemblage theory therefore emphasises bodily capacities to link with other components and gain a different expression (called the 'plane of consistency' in "A Thousand Plateaus": Deleuze and Guattari 1987 pp 337). Like actor-networks, the ontological constitution of an association is made in passing - in the movement of the assemblage and the dynamic interaction of these singularities (interaction here does not simply mean "a combination of the one and the many": Ansell Pearson 1999 pp85); in so doing, the assemblage receives its character. This multiplicity gains its unity solely from the way in which its components function together, "that they 'work' as a functional entity" (Patton 1994 pp 158).

Assemblages are therefore made of components or entities, working in concert. Nonetheless, De Landa (2006) emphasises that assemblages are not congruent organisational or organic wholes; they are instead only brought together through loose affinity. This, like network theories, leads to an emphasis on a world constantly in formation. Assemblages make this loose affinity through their striating tendencies and their introduction of processes to capture flows (components that have been deterritorialized). These flows exist prior to the assemblage (a constituent of relational thinking), and are fixed, secured, overcoded or territorialized temporally and spatially within the assemblage. It is these processes that produce bodies in relation.

But furthermore all components of an assemblage, through the merit of their being a production of forms of relating, are *themselves* assemblages, comprised from a host of different phenomena and parts (Patton 1994) – the smallest ontological unit is not the body but the relation. It is relations, the creation and capture of flows and intensities, that provides the character of assemblages (Bonta and Protevi 2004).

Assemblages are furthermore characterised by a sense of the 'movement' of components. This 'movement' or interaction refers to processes of becoming, the change or flight of entities, occurring within the assemblage and the territory. It is these becomings that indicate the agency or acting power of components, being the process by which entities are drawn together by affiliation (Doel 1996). In this bringing together of components, the logic of naming discrete ontological characteristics or properties of those components falls down; in assemblage conceptions its properties, being made in the bringing together and becomings of its components, 'replace' the expressive properties of these components (as De Landa emphasises, this does not mean that components lose their identity: De Landa 2006). A line of flight of a body from a territorial assemblage follows a line of movement constitutive of that assemblage. A key example noted by Bonta and Protevi (2004) is the machine of the 'wasp-orchid'. Together they form a machinic assemblage, brought together through their becomings, necessary for the ontological constitution of each body. This assemblage is not the addition of the wasp to the orchid, nor does the bringing together mean that the wasp or orchid lose their *properties*. Instead, this machinic phylum of wasp and orchid produces emergent effects or *capacities*. Like with all assemblages, the character is derived from what it produces, not about the organisation of parts into a structural whole. In this way, assemblages are about creation, not addition, and are not organic wholes with singular purpose or organising principle. Assemblages, in their composition, are therefore constituted by lines of territorialization and deterritorialization, and lines of flight that can open onto other assemblages (Peet 1998)

This brings us onto questions of how assemblages relate. So thus far, we have an arrangement of diverse singularities producing emergent effects within a territory of an assemblage, and in so doing constitute the constitution of the assemblage. As addressed earlier, De Landa asserts that components (and their properties) are not products of their *internal* relations to other entities within an assemblage. Instead, components can be detached and re-attached to other assemblages and in so doing retain their content and certain forms of expression

– assemblages therefore have an "*exteriority of relations*" (De Landa 2006). In this way different bodies, humans, chemicals, animals, although they will lose emergent effects, can leave an assemblage and still retain their identity, not merely being the product of the present assemblages relations. A change in components therefore beings a change in the assemblage, but a change in the assemblage does not necessarily indicate a change in the capacities of the components. Again, assemblages are not "the edifice of an ordered interiority" (Doel 1996 pp434) but moves freely, characterised by exterior relations. The wasp may leave the wasp-orchid machine and enter another relation, still being a wasp. The constitution of machinic assemblages in this twofold manner (like the double pincer of the lobster, Deleuze and Guattari 1987) between the content and expression of assemblages, and its forms of deterritorialization and reterritorialization, is a key principle for understanding the ways in which assemblages function, create bodies and intensities, and the nature of the ways in which they may change. Unlike ANT that relies on "immutable mobiles" to make its networks durable (Thrift 2000), assemblages emphasise the ways in which components become and produce emergent effects in the stabilisation of forms of association.

An understanding of the world as constituted by assemblages is useful for an understanding of a changing social practice, especially those that work at the alleged cultural/natural divide. It leads to a focus on lines of flight, on the meetings that generate certain practices. Indeed in the case of human-rat assemblages, it leads to a focus on the way that traps figure to become part of certain becomings, becomings that constitute part of the character of that assemblage; in so doing the trap carries images of certain human-rat becomings.

This project aims to use this assemblage understanding of rat-human co-constitution in an analysis of a changing social practice at the event of the removal, capture or killing of different rats. The process of capture takes place within the enunciation of an assemblage, and requires the expression and alignment of certain materials and the production of becomings and lines of flight

to create the event of capture. The content of this event produced in practice, in motion, relying on a host of knowledges and technologies. As these rat-catching practices have changed historically, this project will aim to examine these changes with an understanding of these practices being made up of components that can be unplugged. Changes in practice (territorializing schemes) are a result of changing components – new technologies, new spaces and sites of rat capture. Each component, in relating, generates intensive effects that mark the assemblage, and the assembly of different rat capture or killing machines.

Furthermore, the practice of removing rats in different ways ties in with different logics of human-pest interaction. Sometimes human-rat assemblages operate through attempts to eradication the 'species' body (tying in with eugenic purification of territories and certain biological heritages). At other times the assemblage can produce a live capture so that the rat can be deterritorialized and plugged into another assemblage. Sometimes assemblages are tied to a process of cleansing, but sometimes they are not. Changing practices therefore indicate changing assemblages and an alteration in human-rat becomings, often a violent site of the expurgation of an abject rat and the energetic production of 'rat-free' molar territorializations.

Assemblage theories open a space for thinking through the particular bodily capacities of the animal emphasised in this chapter. Materials are not a homogenous mass of potential, able to become anything, nor are they discrete entities with a range of unavoidable capacities. Instead assemblage theories emphasise the virtual potential of entities in relation, but also the specific expressive power or capacities of different kinds of embodiment in the creation of actors and territories. It is this 'expressive power' that this project aims to emphasise – this is the particular 'work' that animal bodies do in the performance of the business of social life. This is the site of questions of animal minds, of capacities, of intentions, of the "multi-sensual business of becoming 'antelope' or 'wolf' " (Whatmore and Thorne 1998 pp 437). This project will not be pursuing an animal phenomenology. Instead, there are a number of ways in which assemblage theory provides a register for enacting animal performances in a

way that speaks to the specific animal involved (being specific, and never speaking for 'animal capacities' in the general, is important here to avoid the violence inherent in not attending to "significant otherness": see Haraway 2003). These expressions give that animal a particular kind of sentient and corporeal agency and expressive power; a thinking and feeling body. Most notably in this regard is work on 'ethology' and its relation to assemblage.

Ethology in Deleuzian writing provides a way of thinking about bodies beyond that of the discipline of ethology and zoology. In this conception of ethology, bodily expressions and capacities are sought through a focus on behaviour and on the discernment of the determinate functions of an animal. The Deleuzian use of ethology, through an understanding of the role of assemblages in the production of affects and capacities, rejects such a focus on Beings, instead focusing on the relational production of different forms of being. Deleuze for example believes that the difference between packhorses, plough horses and racehorses is 'greater' than the difference between a pack horse and an ox (Ansell Pearson 1999). The ways in which entities are formed in machinic interactions takes precedence as the focus of study. In these 'ethological assemblages' (Ansell Peason's 1999 neologism), entities do not simply perform to a script derived from relations of interiority. Instead, beings cannot be separated from their relations with the world. Knowing what a body can do is never a closed question for the ways in which bodies can relate to produce unexpected capacities. Ethological assemblages are enfoldings of complex topologies of living and non-living, both being affected and affecting in 'fields of becoming' (Ansell Pearson 1999).

This therefore emphasises the expressive powers and the *becomings* of beings, predominantly through the production or action of affects. What animals do and undergo in assemblages are therefore intimately related to these blocks of affect and affectedness, not reducible to a subject, but increase its power to act in certain ways. We will see this at work with the ways in which baits are used to perform the difference between target (rat) and non-target bodies; or the way in which rat writing (e.g. footprint marks made by rats) produce force that

necessitate different means of capture (depending on the territory or body that these writings create).

Furthermore as a result of the nature of these assemblages and their emphasis on affect, ethology is considered ethics, being concerned with the relations *between* affective bodies (Ansell Pearson 1999). Nonetheless Ansell Pearson effectively critiques Deleuzian ethics and its concern for non-human becomings of the human, instead noting that in examples used (e.g. in the draft horse, racehorse, plough horse), human bodies are the "privileged point of consistency in such an assemblage" pp186, as all of these animals take place through processes of domestication. Although this masters will nonetheless rely on assemblages of such kind as it will be studying human-animal relations, it also seeks to stress an animal geography gesture that emphasises that becomings of animal need no human component.

On other tools

This project, in its study of different formations of the human and rat, will aim to make a twofold move. First it aims to take practices seriously as the primary means of engaging with assemblages of heterogeneous materials. Towards this end, this masters seeks to emphasise the ways in which animal practices work to perform different spaces, bodily constitutions and social networks. Second, it also aims to critique the place of the rat by de-seating some of the ways in which rats become vermin-rats. In so doing, the project will utilise a further set of conceptual tools and research methods; this section is aimed at relating these to the commitment to assemblage outlined earlier.

The first approach sought by this project, which will form the basis for the first of the three empirical chapters of this masters, is a study of the ways in which different rats have been brought into the open in different spatial-temporal contexts or assemblages. In many ways this could be considered a genealogy.

Although the term did not originate with Deleuze, the assemblage can be used to bring about an understanding of the project of genealogies. As McNay writes, genealogies (first emerging in Foucault's "Nietzsche, genealogy, history") aim to "restore discourse to its character as an event" (McNay 1994 pp 58) – it emphasises contingencies that give rise to particular formations. Like assemblages, it seeks to write a history with no coherence or aim or flow of causal events, and indicates points of 'emergence' rather than searching for origins (McNay 1994). Instead it is historical processes, like those of assemblages, which give rise to discontinuous histories of relations of bodies: like assemblages, ethology is a "materialism of the incorporeal (Foucault 1981 pp 69).

In this conception, a genealogy of rat-human assemblages would ask questions about how events of the human-rat were actualised, and to "establish the conditions under which a different actualization might take place" – what Deleuze calls "counter-actualization" (Colwell 1997 pp 20). Such an approach would emphasise the virtual potential of an entity like 'rat', and awaken an understanding of the situatedness of its imbrication in the assemblage and logic of pest eradication – here certain rat capacities or affects are produced by the rat's relation to assemblages. Genealogy shows the assemblages that these components have come from and their forms of deterritorialization and reterritorialization (e.g. gnawing, the action of the rat emphasised by damage to grain and other crops, is able to become a theme of horror in the gnawing action of walls or other materials in H. P. Lovecraft and Edgar Allen Poe). Like genealogy, an eventual history of human-rat assemblages isn't about discovery or emphasis on new or neglected becomings-rat, it is about re-interpreting events to problematise them, emphasising their connectedness to forms of assemblage.

The first empirical chapter of this masters will seek to attempt such an evental genealogy of the rat in Western human-rat assemblages, through the naming of several pivotal moments that outline the shifts in these assemblages in the production of the vermin-rat.

The second approach sought by this masters in its attempt to highlight practices of engagement between different humans and rats is a study of the workings of two different methods of trapping, capture or eradication. This will emphasise the range and forms of materialities, key forms of expression and modes of territorialization in different human-rat assemblages. This masters will also aim to display a change in the character of a human-rat assemblage, through the 'unplugging' of components touched upon earlier.

Non-representational theory is key point of recourse here, and although its relation to assemblage theory has been briefly discussed, perhaps most importantly for this study is its emphasis on 'practice'. Non-representational theories makes no differentiation between epistemology and ontology being committed to a lived-in world. The world is primarily known through *engagements* in which all bodies are caught up, not on the basis of representations; it is "practices [that] constitute our sense of the real" (Thrift 1996 pp 7). Toward this end, non-representational approaches valorise thought-in-action (expressions of components in assemblages) rather than linguistic conceptions. This is extremely useful to an animal geography; an approach that only accounted for linguistic components of an otherwise multifarious assemblage would lose sight of animal acts and fall back into forms fo anthropocentrism.

Performativity is an intimately related concept here, indicating the action of "meaning in motion" (Nash 2000 pp 654). Performance is not concerned with representations or meaning, especially those held in the human mind, but about presentations, showings and manifestations of everyday life (Nash 2000). Performance is therefore a way of expressing a concern with how entities *become* entities through expressive moments (in passing; the event). Connections in assemblages are therefore performed and different forms of human and rat in assemblages achieve certain constitutions on the basis of their repeated performance and affirmation of such constitutions.

Likewise through a commitment to non-representational modes, I will be concerned with thinking with the entire body and the valorisation of all the

senses. Indeed, an opening up of an awareness of the capacities of different bodies to affect and be affected, both rat and human, is central to understanding how some means of rat capture operate as will be developed in later chapters.

This masters also relies on an inside-outside logic, one operated in different forms by rat-catchers and pest control. Although not being faithful to the commitment to hybridity in its demonstration of multiple forms of human-animal engagement through supposedly discrete spaces, this logic is nonetheless particularly useful in studies of rat catching to demonstrate ratting geography – both in its marking out of the supposed origins of different rats, and the point where practice 'stops' or where rats are 'banished to'. The inside/outside logic pursued here does not mark discrete spaces, affirming the moral geographies of wilderness. Instead, rats come into relation in volatile and profound ways by crossing into this 'inside' (e.g. human spaces such as buildings or other marked off territories). The inside/outside therefore denotes spaces in the making; performed by both by rat transgression and by processes of rat capture that seek to 'cleanse' rats from these spaces or to 'return' them to their proper place. Despite the banishment of rats, the maintenance of rat-free space *requires* the multiple engagements and movement of rats across these boundaries. The production or performance of this spacing in many respects makes the rat what it is in western iconography. This inside/outside understanding links up with Philo's work on Animal Geographies and animal spaces in his study of the history of animals in early cities – one of a movement from embracing different kinds of animals in cities (in markets and abattoirs) to one of expurgation in the Victorian period (Philo 1995). Rats, as a resilient force against these spacings, become a particular object of loathing in this period, although for a variety of other reasons which will be discussed in the following chapters.

This masters also uses Ethology; the relation of this with assemblage theories has been discussed. In seeking to attend to rat expressions and capacities in the making, this project will particularly focus on: the ways in which rats may do the work of overcoding and territorialization; becomings that enrol

both human and animal, and complicate the attribution of characteristics to any one body; moments where rat and human capacities are made in the process of capture; and finally the ways in which different methods of capture form themselves around different rat styles of life to become part of its operation – not only will this lead to a more effective means of understanding processes of capture, it will also hope to demonstrate the becomings of different rats whose forms of coming into the open do not rely primarily on the force of human actors.

This chapter will now examine what the methodology used by this masters entailed in seeking to pursue such concepts and to explore the means of countering the concerns with the forms of engagement of the question of the animal as outlined in this chapter.

Methodology

This section now turns to examine the methods of this project, and how they relate and utilises both the aims and theory covered in this chapter. The empirical material is divided into three chapters, including two practice-oriented studies and one evental genealogy – the methods relating to this chapter differ slightly, so are discussed separately here. Throughout all three of these chapters however, there is a commitment to not read meaning 'off' animals (i.e. to take a non-essentialist approach), instead focusing on the contexts through which human-rat engagements emerge, or through consideration of different themes of the rat as components of different assemblages.

The first chapter adopts an evental genealogical approach, collating a range of historical materials from a range of contexts in order to show the range of ways in which rats have been themed in Western history. Through the use of historical-spatial events, certain key shifts could be exemplified in thinking through the rat-as-pest. Many of these will help form a historical background to the more detailed studies of rat assemblages later on.

To assemble this evental genealogy, a range of historical and contemporary sources were sought and examined. In this literature study, I was looking for diversity - diversity of emergences, diversity of events, and an 'overview' of the broad pre- to post-industrial context through which the following chapter's assemblages take place. Eventually, certain themes continually arose in the different sources examined, such as the early emphasis on the rat's fecundity and unbounded reproduction, or the post-Victorian emphasis on the rat as carrier of disease.

The sources that were used included: Western histories of rats; early writings by natural historians on the rat (these were examined at first to isolate the conditions in which the rat as a species emerged in biology, but surprisingly offered a source for understanding the first particular means through which the rat became an affect of some loathing through their emphasis on the brown rat as an invader); the OED entries on rats and vermin (to examine the huge variety of ways in which the rat affect can be and has been used, especially in ways now obsolete); government documents and legislation surrounding pest control (the discipline of pestology, seeking the eradication of rat species, and their political work for the production of this legislation was particularly useful here); books on pests control and trapping; works of fiction (visual and written) that use the rat for a variety of ends (predominantly horror, but also in other ways, such as social commentary); Victorian books on social impoverishment (an important source here was Henry Mayhew's early documentation of "London Labour and the London Poor" which details rat catching, eating and use in a variety of ways); and books covering the Victorian sanitary movement and the relation of processes of hygiene to social stratification of the time.

In many of these cases, a characteristic of the rat (e.g. its fecundity) is deterritorialized and entered into another assemblage. An example being the way in which the notion of unbounded reproduction is used in modern fiction as a means of highlighting a human fragility, contrasting this aggressively competitive species with the biological weakness of the human. In this case this theme of rat fecundity, arising from an early assemblage that used rat fecundity as a means of

contrasting the 'native' rat with the 'foreign' rat, is able to enter into relation in a wide range of contexts.

The key process for this chapter's research was therefore the isolation of themes – ontological claims about the rat ("the rat is ..."). These were used to discern key shifts or events in human-rat assemblages that would be of use in all the empirical chapters. The historical context of these could be presented, showing how these elements are entwined with assemblages of human-rat engagement: in each case it was important to consider these themes of the rat as emergences of the constitution of these assemblages. In this respect a range of material, from rats in modern sculpture to the variety of ways in which rats are used in the horror genre, had to be left out for not forming part of the key shifts chosen.

With the second and third empirical chapters, the masters turned towards an exemplification of two specific assemblages in which the rat-as-pest took place. These would explicitly be concerned with the focus on the "immediacy of practice" (Gerber 1997 pp13), moving away from an analysis of text and discourse, towards exploring the non-representational – habitual practices and the day-to-day, where "human language is no longer assumed to offer the only meaningful model of communication" (Thrift 2004 pp 59).

This masters aimed to cover two different historical-spatial examples of techniques of trapping, killing, control, etc, in order to show the multiple ways in which rats and humans are co-constituted even in a relation that denies the possibility of conviviality. This masters began with a method of isolating various methods of trapping that could be discerned (through studies of past and current literature on trapping techniques). From this starting point of a trap, the various ways in which this trap is used in human-rat assemblages, including the knowledges and techniques it relies upon, the performances of rats it demands, the means of figuring the rat is uses, would then be examined step by step, adding key components of assemblage (expression and content, axes of deterritorialization) to give an understanding of these networks.

One way of doing this, and the primary means for the second empirical chapter of this masters, was through a literature analysis. Fortunately, a large series of books have been released in recent years by Read Country Books. This series is devoted to the publishing of a peculiar genre of literature; these books, written by Victorian rat-catchers, aimed at the uninitiated but interested, delve vividly and richly into the practices of rat-catching, often with the intention that readers reproduce such techniques themselves. As such, these books are particularly littered with explications of the techniques, skills, and materials necessary for the catching of Victorian rats. With the Victorian period, this was the primary way in which the assemblage could be accessed with any richness – artefacts remain about rat-catching in a number of museum collections, but do not carry a lot of detail about their use, essential for this masters. This therefore had to be relatively avoided as a means of engaging in Victorian rat-catching practice. In reading through these texts, I was aiming to isolate the components of assemblage, what was necessary for different rat catching practice, and what content and expression they gained. I eventually decided to focus on the two means of trapping (the 'open trap' and the 'breakback trap') that I thought particularly illustrated the changes encountered in the empirical material, an archetype of the changes in human and rat constitution.

In the final chapter predominantly focused on a method of a 'walk-along interview' with pest control. Toward this end, a number of pest control businesses in the North-East were contacted, ranging from extremely large companies like Rentokil that employ hundreds of people, to other businesses that were only single pest controllers. Many were unwilling to involve a member of the public, often for reasons of 'professionalism' (a key element that will be discussed in the third empirical chapter), risk, or the hindrance it would cause them, but eventually three companies were willing to take me on jobs. These were: Envirocall, a state run Pest Control service offering free treatments for the residents of Newcastle, with nine members of staff; Durham Pest Control, which was a single pest controller; and Ecolab, one of the largest commercial pest control companies globally. Where sources are quoted in the following chapters,

pest control technicians are named by their company for issues of anonymity, although all were willing for their names to be used.

With these businesses and visits, I adopted a method of 'walk-along interviews'. This meant following the pest control 'technician' through the day-to-day jobs, immersing myself in the practice of doing treatments. In fact, all technicians in training undergo a process of 'shadowing' other pest control technicians in learning how to become a pest controller and how to effectively cleanse rats. Therefore the technicians were in some cases extremely used to means of disclosing the different means of practice in a variety of linguistic and non-linguistic ways. As well as these walk along interviews, the research also went down other forms of training that a technician in the making must also follow, including a reading of pest control textbooks (most important of these was A.P. Meehan's 1984 book "Rats and mice: their biology and control" – the "bible" of pest control: Envirocall source). All of these are *explicitly* focused on practice, teaching others the various skills and techniques that have been developed by the pest control industry in order to track and manage rats.

I divided these walk-along interview questions into three rough areas: techniques, spatialities, and rat ontologies.

'Techniques' involved discerning the doings of pest control. All the three areas were made in the doing, but this area involved asking specific questions about the day to day and regular processual characteristics of a treatment or job. Questions included: what tools or baits or traps are used, and in what circumstance; how to deploy baits, and typical techniques required in this; what happens when one technique *fails* or cannot be used, and common reasons for this occurring; what materials are essential to capture; what day-to-day life as a pest control technician involves – their relation to other actors in the assemblage. The key here was surrounding the use of practical knowledges in how techniques were carried out. In this I explicitly aimed at getting to multi-sensual lived in worlds – the ways in which the senses were used in practice. In many cases, as will be explored in the third empirical chapter, this was in fact essential to some processes. Questions on techniques also involved getting information about

what demands inaugurated pest control – for example, is it mainly demanded by commercial enterprises for the protection of goods, placing the emphasis on pest control knowledges and practices that enabled the protection of these spaces, or is it a distinctly domestic practice used for the resonances of invasion?

The second set issues were around 'spatialities', the spaces produced in the process of pest control. Pest control required the making of a set of distinct spatial territories in the process of pest management. These included indoor and outdoor distinctions (as a means for deciding for the laying of suitable baits); different sites of the occurrence of rats, including feeding places, 'entry points' (the sites where rats cross the boundary of inside-outside), and warrens. It also involved exploring the spaces where trapping stops and how these are figured. A related issue here is the existence of spaces that are formed by the absence of pest control intervention. Although in many respects the spaces of pest control (unlike the early Victorian rat-catching) is a space without remainder, pest control practices undergo significant changes in these sites, and this formed the basis of some of the sought information (e.g. the space of the sewer and how treatments are done here).

Third and finally, I was concerned with questions of rat ontology. This involved noting instances where the rat may be a question of breeding rates, periods or sites, or a sense such as the taste of the rat, or situations where the rat was a set of chemical-genetic interactions, such as the information used by pest controllers about the functioning of different poisons. These questions were aimed to provide the basis for a study into how the rat was engaged, and what forms of rat engagement were required to the processes of capture. These included: what effective capacities were required; what must the rat *do* to be trapped; what techniques are used to ensure this 'doing', i.e. how does the rat perform the rat-as-trapped; how are other ontological elements of the rat used to enable trapping; and the ways in which the difference between target and non-target species was performed. Here I focused on difference, and the multiple ways in which rat ontologies were used. This was area was also concerned with grappling some of the research questions developed in this chapter, including

forms of mutual co-constitution required by practice, and the ways in which certain actions of rats were necessitated or brought into the open as a requirement of the operation of certain processes of capture. These questions were key in avoiding placing meaning 'on' animals by recognising ontological claims and how these fed into the process of capture.

I kept a journal of notes and diagrams as the primary means of recording the information, coding these notes later according to the themes outlined above. What struck me at first was how little rats *appeared* in modern pest control – seeing rats was an extremely rare event for a technician. However there were countless ways in which humans and rats were otherwise engaged, forming a wealth of empirical material that the following chapters draw upon.

Conclusions

This chapter has examined the changes that have taken place towards questions of nature within the discipline (a field into which animals have long been placed and consequently ignored, Wolch and Emel 2003) that have both allowed for, and in some cases demanded, a social geography of animals in different ways. This chapter has noted how two very different approaches to a social study of animals, both relational and discursive (usually referred to as 'animal geographies') have neglected offering insight into the politics of vermin for a variety of reasons, including the logic of valuing animals through routes that exclude thinking about the modern rat and its contemporary constitution. Furthermore, although this masters is indebted to the work of animal geographies, this chapter has sought to question the extent to which the discursive impulse within this field is an effective means of avoiding geography's anthropocentrism. It has also sought to develop ways of placing emphasis on the particular corporeal and situational expressions and capacities of different animals, in an attempt to avoid positing an animal that is only an agent to the

extent that all materials in relational geographies are. In so doing, it hopes to carve a place for a more effective resistance to anthropocentrism.

This chapter has also introduced the main theoretical framework for this project, being an assemblage theory of social practice. The engagement with this concept also calls up a variety of other concepts, including the notion of performativity that emphasises "meaning in motion" (Nash 2000 pp 654) and the practices of the production of the now, away from representational modes of engagement with the social. The notion of the assemblage allows for an anti-essentialist rat geography that emphasises the many contextual components that are brought together in the making of different rats.

Likewise, this chapter has elucidated what the methodology used for this project entailed, explaining how it sought to be suitable for engaging with questions of practice and attending to the heterogeneous materials that enable the production of the now. This was essential to avoid relying on representational forms of engagement with the rat, and to fully animate the practices through which different forms of human and animal emerge.

This masters now opens to the three empirical chapters that this masters centres on. This includes the studies of two human-rat assemblages, but will first turn towards the genealogical study of the vermin-rat in Western iconography, the chapter that will serve as an introduction to the assemblages through which the rat has become

A cultural history of the Western Rat

Introduction

What is a rat? What is it to *be* a rat, or ratty; for something *not* a rat to be like a rat? What elements must be used, and to what ends? We can sense immediately that it is not an affect imbued with great amiability, but is there any escape, and in what ways can something be a rat?

The OED covers a great wealth of accounts. There are both sides of a subject/object divide (rational agents/passive substances), but only ever cultural entities. For some*one* to be ratty is for them to be wretched, mean, miserable or nasty, or for them to be in a state of ratty-ness is for them to be ill-tempered, irritated or angry. One can also be ratty *over* something: meaning to be infatuated, to be unruly, uncontrolled or mad about this infatuation. To be as a rat is to be drunk as-, weak as-, poor as-. Rats may be 'given' but they are never a gift – it is to give hassle.

For some*thing* to be ratty is for it to have a ratty appearance: a hegemony of distant vision, not tactility; an ocularcentrism (Ingold 2000) that holds the object at arms' length, nose pinched (for if a rat is smelt then 'something is suspected'; something is amiss or afoot). It is for an object to be worn or decrepit, old or decaying, especially fabrics and paper (cultural items, not natural) (Mark Twain 'Adventures of Huckleberry Finn' (1885): "both of them had big, fat, ratty-looking carpet bags" p182). Something may be rat-deserted; -eaten; -infested; -ridden; always these are buildings, constructions made by human action. But a rat isn't just a question of being, even within a Cartesian ontology. It's also *done*. To rat, to do rat, is to do thieving or pilfering; it is to desert, to flee, to change side, in politics, in crime, in war, in the workplace.

The affect of the rat, the way in which it can work to act and enact bodies seems always entirely negative, but it is to be negative in a number of precise ways. To be ratty is to be unruly, wild and untamed. It is a disorderly disposition, a danger to others, devious by character and parasitic by nature, but never to

itself. It is not to be hysterical or emotionally tumultuous, but it is aggressive and threatens other bodies through predation; it is unsettled and always able to unsettle. It is antithetical to but dependent upon sane, rational man.

When an object is ratty it carries decay, but always a cultural decay, of progress, of civilization: never a decay in or on nature (never a 'ratty tree'). For something to be rat-infested may point to a bodily activity of a rat (e.g. gnawing) but it needn't: rat bodies may be absent in the decay. A rat-infested place is to imply a non-liveable place, or liveable only for the margins of humanity (e.g. for the mad). When rats make a space, by definition there is no possibility for human-rat conviviality.

'Ratness' as an affect goes far beyond the biological species 'rat' and beyond any particular or possible activity of this entity. It is a hugely resonant power, a product of centuries of human-rat assemblages, not labelling or representing some animal, but able to enact a wide range of (invariably cultural) materials.

In recognising the resonance of this concept in Western iconography, and through the diversity of contexts of its emergence covered here, we sense an energetic and lively geography and history. Indeed, rats have been both engaging and engaged with in a long, violent and historically significant Western past. It was a relation producing great vitriol before the sewer and long before the plague ever had a chance to be elaborated as a component of the rat (not being 'discovered' until the 20th century). Above all however this history is not hidden: methods of taming, controlling, and using the rat are wide ranging and visible, making the rat affect rigorously circulated. This has profound effects for the rat bodies caught up in these networks of power relations.

This chapter pursues a rat genealogy, an anti-essentialist history where changes in the expression and intensity of the rat affect occur as a result of changing assemblages and practices. It hopes to name several pivotal moments in changing rat constitution in the West (see *figure one*), including the origins of particular rat hostility that emerge as a result of the 'invasion' of the brown rat

and decline of the 'native' black rat, nothing to do with moral spaces of disease or the parasite. A further key shifts examined includes the 19th century and 20th century recoding of the rat's 'origins': first the rat as originating in the discrete spaces of wilderness, and then a reconfiguration though which the rat emerges as *part* of human spaces necessitating a purification action. These latter shifts will also be the focus of the following two chapters.

Through focus on themes of the rat and cultural uses of the rat affect, this chapter hopes to illuminate both the different assemblages (actors, materials, elements) and the ways in which the rat as affect can be transported and used in assemblages that have little to do with rat corporeal expressions. In closing, this chapter intends to emphasise how rats have come to perform and form part of the performance of distinctly *cultural* materials and spaces, and also show how the 'always destructive rat' emerges from the range of encounters and contingencies examined here.

Given the diversity of some of these elements and themes, this chapter organises them chronologically.

Mouse or rat? The object of study

As an opening, and in testament to a non-representational conception of language, I aim to cover some of the complexities of naming the rat, and how certain naming strategies coincide with different practices involving rat activity. This will avoid the Abrahamic naming scheme posited by James Rodwell, a mid 19th century vocal writer in the burgeoning field calling for the complete extermination of the rat species. The word 'rat' he says captures the essence of the foulness of this animal in its harsh and grating sound (Rodwell 1858).

Nevertheless the complex origins of the 'foulness' of the rat are deeply problematised when we consider an interesting problematic: until recently there was no rat or mouse differentiation, and although there are many other important differentiations of 'the rat' from other beings, how do we know if authors are

speaking of the same object? This was a 'problem' for Rodwell, along with most naturalists of the time, and he is keen in his writing to distinguish what he means by the rat – a small mammal, not a water vole or an albino rat (Rodwell 1858). This problematic was also encountered by Umberto Eco in his book on translation, "Mouse or Rat?" (Eco 2003) and indeed might be a problem for a this very study on rats.

Avoiding an anxiety to say the rat originated here (seeking recourse in biological origins, or the first use of the word 'raet'), a more useful move is to recognise that it is 'the rat' as affect that we are studying, connected to but not reliant upon some fixed corporeal identity. So the key here is to if we are talking about the same affect as early writers on the rat? Umberto Eco in translation notes the prince in Hamlet who cries out "How now! A rat!" before stabbing Polonius, but translating rat into the Italian ratto (although they both refer to the rat) does not carry the same degree of insult. 'Topo' (a word for both mouse and rat) does, and although it does not refer to the same species, it workably carries the sense of surprise of the scene – it is 'the rat' affect (Eco 2003).

The question becomes therefore in what assemblage and what historical contingencies did the rat as affect, as an animal to be hated or loathed, emerge? It is interesting to note that during a period in which both rats and mice were seen as wild pests there was no differentiation between rat and mouse (see *figure one*). In Hebrew the word 'akbar' simply refers to corn-eaters, and translations vary on which rodent is chosen (Burt 2006). Early (pre 18th century) differentiations included separating 'big' and 'small' rats, or the 16th century division of rats from other pest animals on the basis of their distinctive upper teeth, although when compared with modern species classifications, 529 modern species have this tooth formation (Michaux 2001) the action of the 'gnawing rat' nonetheless came to be a distinctive motif of ratness, despite ratness including a large number of other species. Other early naturalists divided small mammals into climbers, walkers and burrowers (Blainville 1819); or rabbits and 'others' (Waterhouse 1839).

Permeating these naturalist classifications is a history of *discovering* the defining characteristic of different species. Eventually the classification of the rat that gained credence was it's place in the order of Rodentia, gnawers (Burt 2006). At this early stage in hostilities toward the rat, the very classification of the rat species is based upon the way in which it damages human investments – here the gnawing teeth refer to the gnawing of these small mammals to human crops and buildings.

Nevertheless, distinctions between the rat and other mammals were particularly fluid at this time, and hostilities towards 'rats' pre-1700 was no greater than hostilities towards other pest animals. Ratness only became a particularly vitriolic affect with the differentiation between brown and black rats which this chapter now turns to examine.

Figure Two: Indeterminate depictions of rats or mice in Byzantine manuscripts. Source: Burt 2006.

The changing topology of rat origins

Particular hostility toward the rat occurred with the arrival of the brown rat to Northern Europe in the 18th century. Here, the rat was differentiated on basis of its origin. The black rat, it was purported, was the native British and indigenous species, now declining due to the arrival of the foreign and more successful brown rat. Here a curious *defence* of a pest animal (the native black rat) became necessary as a result of intersections with an emerging British

nationalism. The 'invasion' speak used to discuss the invasion of the brown rat was an adoption of other nationalist speak at the time (Burt 2006). Brown rats therefore became characterised as a foreign species notable for their particular *fecundity*; so it is here that the obnoxious rat affect emerged – here nothing to do with dirt, but from other forms of transgressive behaviour: its unbounded reproduction and voracious appetite (Twigg 1979).

This figure runs through the writing of enlightenment and Victorian naturalists at the time, some of whom were the most eminent natural historians: Peter Pallas wrote that "brown rat is of all species the most foul, ferocious and pernicious" (Pallas 1778 in Burt 2006 pp 40). Thomas Bewick writes that the "surest way of killing them is with poison" (Hodgson 1997) an attitude not expressed in relation to other animals, and in fact is articulated here with great malice.

Perhaps most notable of hostilities among naturalists is the Roman Catholic naturalist Charles Waterton. Waterton writes an allegory in which brown rats or "The Hanover rat" (referring to the Protestants brought over by William III) defeat the native black rats (native Catholics led by James II) making them exiles. Here character traits and the figure of foreign successful invader are translated into a different story (Burt 2006). Comte de Buffon (1781) said that the rat makes up for its poor size, courage, and lack of arms given by Nature through its sheer profusion and virility. If there are too many rats for the resources available (echoing the contemporary Malthusian theme of the time) then rats will turn to savagery and cannibalism: they will turn on their 'own kind'. This potential for cannibalism as a means of keeping numbers in check for a species with no natural checks became a key rat figure. It is also expressed by Thomas Bewick (Hodgson 1997) – rat numbers are kept in check by their very voracity: to consume their food base and their impulsion to devour each other. Georges Cuvier in 1817 expanded on voracious rat. To him, the rat was an eating machine capable of disproportionate destruction as a result of its ability to unstoppably gnaw (Cuvier c1994). To Charles Fothergill (1813), this rat would turn the earth surface into a barren waste (one of the earliest uses of the rat

affect in an apocalyptic vision) if it wasn't for their cannibalism, due to their sexual lawlessness and ability for limitless expansion with otherwise no 'natural' restrictions (Hodgson 1997).

So here, the rat figure is objected to on the basis of its vices, nothing to do with notions of cleanliness. These vices (over populous due to permanent and unbounded sexualisation; cannibalism; rapacity) were not just figured through the rat but also through a then reformulated 17th century subjectivity which rejected excess (Stallybrass and White 1986), and early colonial motifs used to characterise other cultures (Blunt and McEwan 2002). The rat as 'low order' animal with no natural enemies requiring purposeful human eradication therefore become a prominent theme, an emergent effect of the invader/native logic of this early human-rat assemblage.

Expulsion to cleansing – from wild pest to urban vermin

The rat affect, referring to the brown rat or the foreign rat, as an animal to be controlled permeated the late 18th century. Nonetheless, a further set of events took place in the early 19th century that would enable the rat affect to take on some of the horror motifs common and resonant in the contemporary period. This is to do with changes in the perceived 'origin' and place of rats, emerging from changing human-rat assemblages. The 'origin' of rats, as will be elucidated in the following chapters, demands different rat destruction logics, ranging from 'control' and 'eradication', to 'banishment', 'expulsion' and 'cleansing'. The early brown rat assemblage, with its origin 'overseas' therefore demanded eradication and banishment efforts that perform national boundaries. Nonetheless as the brown rat lost its resonance as an invader species, this chapter turns towards a different, more important, change in human-rat assemblage that led to different logics of rat capture: the move from *wild pest* with its origins in 'the wild' to *urban*

vermin, the modern rat constitution, an assemblage in which the rat originates from the 'inside' of human cultural spaces.

To begin, chronologically, the rat was a constitutive part of an assemblage in which it was a wild pest. Here it was a creature that predated on particular human resources, and human actants are placed to defend these investments from the destructive forces of nature, of which rats form a part. As such, the rat here is of a similar order as the fox, the hare and the wind. Early trapping techniques here were therefore means of preventing rats from entering particular places and became part of the performance of these protected spaces, but the pursuit of rats through rat-hunting in this period was a more substantial human-rat relation. As will be noted in the next chapter, rats-as-pests, along with a variety of other pest target animals were pursued in a wilderness space, a smooth space (without boundary). The rat (and mouse) in this assemblage, like many other pest animals (Woods 1995), is greedy, thieving or disruptive based upon the manner of its destruction. It is not an allegory for filth, or an animal with much particular focus.

There are countless tales of rats in Hebrew, Indian and Greek, constituted through assemblages such as these in which their origins lie in an external wilderness, as an economic liability and spoiler of grain; although sometimes the rat has been formulated as figure of plenty and excess (Burt 2006). Within these assemblages, control over rats was often multiple and diffuse – a variety of human actors had the power to engage in methods of rat catching and hunting. An example of this is the way in which 16th century farmers marked barn doors to expel rats – here rats had a mythical power to foretell the destruction of buildings, so the farmer could 'trick' rats into leaving barns (see OED entry on 'rat'; Meehan 1989). Many human actors had this affective power over rat doings, and a number of folktales use this theme of communication with rats; the power of rat destruction or communication in this assemblage was not the remit of particularly specialised actors. Here the act of expulsion 'ends' with the returning of rats to their origins in the wild.

This subjectivity of control over rat doings changes in the 17th century, with the power of talking with rats shifting towards the hands of particular trained or specialised individuals, arising from the shift in logics of human-animal communication of the time (Senior 1997). The OED notes the expulsion of Irish rats by 'riming' bards 1650 – rats banished from Ireland by a specialised group of scholars who could speak the language of rats. This is also taken on through the story of the Pied Piper, considered a central fable in the origin of 'the rat', but the introduction of the rat to this fable was a much more recent component than commonly thought. The piper story once did not figure rats at all. It was instead a story of a musician that did a job for a city, and using the primitive language of children (music) took them away as payment. The Brothers Grimm are credited with the first introduction of rats to the story in 1816 (see Florescu 2005). This was an emergent effect of a material change and a shift in human-rat assemblage – the growth of cities and rat and human populations here. The chapter turns to this change later. The rat figure in the Brothers Grimm story is elucidated as a particular kind of threat, to buildings, through the motif of gnawing. The pied piper here is a specialised figure who alone has authoritative knowledge on controlling rat movement. But here, as with the rats as pest, the rats are *expelled*, not a kind of ritual cleansing, but instead banished from the city, exorcised, driven away by calling a holy name, and *returned* to their place in the wilderness. The rats here are out of place in cultural spaces.

During the 19th century a substantive shift occurred in the human-rat assemblage that will be important to the following chapters, and as illustrated in *figure one*. The rat in this historical-spatial period became a threat to civilized life: object of *particular* fear and loathing, not in the form of an invader of a national territory. With this assemblage shift, the origins of the rat move from one of being from 'the wilds' to an origin from *within* cultural spaces, the spaces of the human itself. The rat stops having an original existence in natural spaces, and even ceases to be considered wildlife as a predominant classification. This is an extremely unusual constitution of an entire animal species: see Whatmore (2002)

on networks of wildlife animals supposedly from a pristine exterior. Her move here is to challenge the idea of pristine exteriors by asserting the reality of much more complex and promiscuous patterns of human-animal engagement. In the case of the rat, and unusually for the constitution of an animal, its origin and proper place in the 'wilderness' instead ceases to be a defining ontological component. Although the rat does not stop inhabiting 'the wilds' (indeed it is sometimes claimed to be the greater pest 'there' still: see Twigg 1975) it nonetheless ceases to be part of pristine exteriors and their performance.

It is part of the modern constitution of the rat in the contemporary human-rat assemblage, emerging in the mid 19th century. Here they become a permanent product of human activity, a part of it and not apart from it, ceasing to have life outside of human spaces. They become totally connected and entwined with humanity, a theme which will be elucidated later.

The pivotal space in the alignment of rats with inside rather than wild spaces was the creation of the sewer and its intersection with the production of a particular Victorian subjectivity. 'The sewer' here refers to the complex and expanding system of channels, drains, open ravines, ditches, cess pools, pumping stations and galleries, being built with particular urgency in the early 19th century (Mayhew 1851). Through this century of forceful political and ethical demands about 'public health', this set of drains and other architecture became amalgamated into a Victorian project of removing biological, bodily and societal impurity (Stallybrass and White 1986). Through a series of Victorian innovations, these once open channels for the movement of waste became underground and censored places for part of the Victorian city, aligning with other practices of Victorian bodily censoring, to create a vast transcoding of abject bodily products, social class and city topography. It became instrumental in Victorian practices of filth separation: between suburb and slum, 'foul' and 'healthy' air, between coherent and leaky bodily boundaries, the civilised and debased, upper and lower (see Mayhew 1851).

The sewer in western iconography carries such a profound resonance because these energetic practices to maintain this imaginative geography. The sewer space is not discursive in the first instance, but a profoundly sensory space: the dread of bad air, hidden underneath the city landscape. This origin of rats coming from 'underneath' is played through Edgar Allan Poe's (1842) depiction of the mass of rats habituating and performing 'lower' spaces – in his story it is the dark, secret, ominous place of the hole. This imaginative geography is a generative performance of the particular desires of Victorian subjects, enabling the grid of power which constitutes the modern rat. The association of rat with sewer becomes a means of defining its character, including the ways in which it lives of effluvia and 'the human shadow', never providing anything toward human activity, the archetypal parasite of civilisation (Serres 2007). Indeed Henry Mayhew, an English social reformist and documenter of the Victorian 'underclass' comments on the Victorian figure of impoverished people and rats as entwined physical and moral dirt in his observations of the London's poor (Mayhew 1851).

The fact that these boundaries were made insecure by rats meant that methods of rat extermination became performances of securing such boundaries; the rat in this assemblage becomes part of the performance of security of filth from purity, and especially of sewer boundaries where 'the sewer' demarcates an abject spaces. Like the rat, the sewer space is considered a 'cast off' from the human subject, recognisably but no longer human (see Kristeva 1982). Rats, who became the only 'life' in these spaces, took the sewers with them in their regular movement from building to underground. Hogarth for example, a late writer in the field calling for rat species destruction, writes that rats should not be thought as harmless in sewers because these spaces are "simply a breeding place for large numbers of rats that [regularly] escape into warehouses, shops and dwellings" (Hogarth 1929 pp93). In the movement of rat from sewer to surface the rat does not bring *disease*: as will be discussed later, disease was not 'discovered' and did not form an instrumental part of human-rat assemblages until into the 20th century (Burt 2006). Instead this boundary crossing rat brings

with it the censored moral impurity through this movement. In fact during this period the rat is re-figured through its ability to *bring* bodily boundaries with them and to therefore become a doubly transgressive animal; in staying 'clean' and preserve itself from contamination, the rat transgresses yet carries purity boundaries with them in their bodies (Stallybrass and White 1986).

Rats are no longer aligned as pests on prized or valued goods, but are now parts of abject waste (although of course this by no means captures the extent of rat corporeal activity). Rats in this urban assemblage become a depraved, horrific and parasitic animal that feeds of human society yet provides nothing. It is this parasitic behaviour that corrupts it; with some writers in the Victorian period asserting that 'in nature' the rat might be an animal of favour (Burt 2006).

A key change in the constitution of rat killing occurs here: rats are now *cleansed*, not expelled (see *figure one*). Expulsion is an action once and for all directed towards an outside; cleansing however generates a constant performance of rat boundary transgression and is not a return of the rat to an outside. It also links with idea of the rat as pollutant to be cleansed; rats, as part of culture, however debased, form part of the constant possibility of re-defilement.

Figure Three. Illustration depicting one of many sewer banquets held in newly-built sewer channels in the Victorian era. Source: www.sewerhistory.org

Humans in this new human-rat assemblage become constituted in a different way to that of the rat-as-pest. Sewers, although censored, were by no means *invisible* spaces. Taboo creates garrulity (Foucault 1979), but furthermore there was an astonishing plethora of human actors who sought work in the sewers in the Victorian era, including workers of drainage, police, scavengers, and even hunters (Mayhew 1851). In their particularly intimate relation with the abject, many laborious performative practices were adopted by these Victorian actors to separate themselves from wastes. One of the most surprising techniques used by sewer municipalities was the holding of banquets for royalty and archbishops in grand opening ceremonies of sewers and pumping stations (Stallybrass and White 1986). Although the role of performing a separation between subject and abject has implications for the later chapter on Victorian rat-catchers, here we note the changing constitution of actors in charge of catching rats as a result of this changing assemblage (see *figure one*). Authoritative knowledge becomes essential for dealing with abject rats: now rat control is placed in the hands of these specialised individuals. Victorian rat

catchers navigate the precarious space between professionalism and social underclass through performances of particular mastery and control of the rat (Edelman 2005). This theme will be developed later.

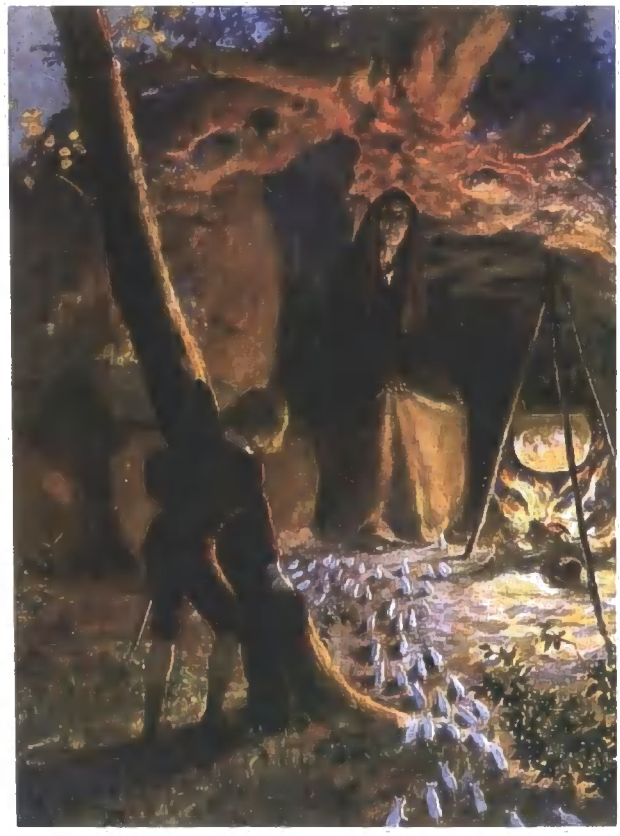


Figure Four. The changing communication with rats - a 19th century illustration depicting a sorcerer and her *rats. Source: Burt 2006.*

In this urban human-rat assemblage, rats are no longer communicated with. Instead the narrative theme of conversation with rats is reserved for outsiders, for the mad. It also becomes a particular theme in modern fiction. In the 1971 horror film 'Willard', a social misfit has an affinity with and authority over rats, commanding a swarming mass to kill his boss, eventually leading to his confinement in an asylum. Here particular recourse can be taken in Foucault's work and his explication of the character of madness (Foucault 1967), and his particular vivid image of the exclusion of the mad to the wasteland or marginal

land of society is for the rat the sewer space in this modern motif. Here rat purification is central to the performance of the spaces of civilization. Indeed, the rat becomes an agent of human dissolution with an ambiguous relationship to rationality and language, a theme which will be examined later.

The changing threat of the rat

Along with the shifts in assemblage, accordingly the threat presented by the rat underwent significant changes in the 20th centuries. Two key ways is the move from rats being harbingers of disease to carriers of disease, and the new constitution of the rat as a *global* population.

Rats have long been considered harbingers of disease. The arrival of rodents signals an impending outbreak of plague in 1 Samuel 6:4. Likewise the arrival of legendary 'rat kings' in the 16th century, rats entwined together by abject materials (blood and excrement) also work as signals of impending ill health (Miljutin 2007). Here they carry the message of the arrival of pestilence, but are not ontologically the pestilence themselves. It wasn't until the 20th century and through wide dissemination of information about rats and disease that rat bodies took on the resonance of the risk of disease that carries such intensity in the contemporary period. Before this, contact with their bodies was only thought to be injurious through the vicious rat bite. In fact, Burt notes the multiple ways in which the consumption or use of rat bodies (as skin, powdered flesh, or whole bodies) were thought a source of *health* in some assemblages preceding the urban rat (Burt 2006). It was only through the work of Yersin and Roux in 1894 that bubonic plague and rats were connected in the ways so profoundly carried by the modern rat (Cartwright and Bidiss 2000), and it took several decades for the rat to be established as a *carrier* of disease.

Likewise, the rat produced through human-rat assemblage changes in the 19th century became a global threat, a figure of extreme evolutionary success

and a world colonizer, an animal impossible to eradicate. With this figure, human and rat are intimately connected; the extent of the rat across the earth mirrors the extent of human civilization. Rat and human 'reaches' are mapped in this way in a variety of 20th century contexts, including the Nazi film 'Der Ewige Jude' in which a diagram of rat migration parallels that of the migration of Jews. Likewise, this claim about the rat that exists only in, and across all, human spaces is played in modern pest control contexts (see Meehan 1984; Cornwell 1973). The global rat is a key component in the following theme of the rat, in which the rat is played as the twin of humanity in a number of ways.

Rats as primal base (or debased twin) of humanity

In the assemblage shift towards the rat as part of human society, with the rat now ontologically from within it, no longer from the outside or the wilderness, the rat started to carry a new motif in the 20th century. The now global rat, a particularly curious animal that permeates the entire extent of human civilisation, performing part of what it is to *be* human, becomes the twin of humanity. This masters considers this twinning to be an emergent effect of certain human-rat assemblages that will be examined later – the rat, surviving centuries of hugely laborious efforts to expunge it, becomes an impossible target. This, coupled with the urban spaces it performs, makes the rat part of the human, however parasitic or damaging to it. This figure, complicating the ways in which animals are often pitted as the 'other' to the human, is played out in certain ways in 20th and 21st century narratives about the rat, from horror at- to celebration of this depraved constitution.

The early 19th century horror writer H. P. Lovecraft has a particularly vivid extrapolation of this theme in his short 1923 story "The Rats in the Walls". In it, a man looks through the history of his ancestral family home (the home here being synonymous with 'civilization') and finds, underneath, a horde of cannibalistic rats (here playing as the *origin* of both his family tree, and of the entire human

species). These rats eventually eat away the joints of the house and humanity (mind and language) leading the central character into madness. The rat here is antithetical, predatory, and parasitic upon civilization; its teeth gnawing through and undermining the tight structure of language. This figure of the rat as the twin of humanity, with a depraved mutual history, is elucidated in a number of ways in contemporary fiction.

Rats may live in the human shadow, always parasitic upon human activity and especially thriving on the destructiveness of civilization (the human shadow), including war, imperialism, waste and destruction (see: Hans Zinsser 1935). This rat figure is also played David Jones's poem "In Parenthesis" in which the rat and the soldiers of WW1 are interchangeable as sharers of the underside of civilization. This rat figure is "mankind's mirror species", reversed but similar (Sullivan 2004 pp9); 'modernity's totem animal'.

Rats can also be the very debasement of evolution. This rat figure is, through evolutionary and eugenic discourses, the primal and base level of the human species, derived from devolving down the evolutionary ladder from human. This rat is therefore an uncanny sub-human; a sameness that brings horror, not the basis for a humanist ethical connection. It is a depraved base that uses elements of the earlier rat figures, with characteristics antithetical to civilization (unbounded sexual reproduction; impurity). This figure was used in Nazi German propaganda to engage both the 'rat species' and 'the Jewish species', with shared characteristics and evolutionary base.

The rat may also be an agent of human dissolution. With this rat figure so closely sharing and predating on evolutionary heritage and spaces of activity, and resulting from its destructive capacities, a rat figure that so readily invades the preserves of the human, undoing human rationality, culture and language, is a prominent motif in 20th century literature. In Albert Camus' 1947 novel "The Plague", when a town is swept by pestilence, many attempt a futile correspondence with those outside the city limits. The rat that empties language of meaning plays through this story. Likewise in George Orwell's "Nineteen Eighty-Four" (1949), the protagonist Winston Smith attempts a futile stand

against the restructuring of language by the totalitarian party. The rat is used continuously to figure both the rat and the party's resultant barbarism, its madness (especially of 'doublethink' – the holding and accepting of two simultaneous and contradictory beliefs), and finally as a physical means of restructuring Winston's hidden inner psyche by boring through his face, the window into Winston's protected inner thoughts.

Rats are also played out as the successor of the human species, living on after the human at the end of the world. Here, this rat is paralleled with the human as an evolutionary success story (adaptable and populous), but due to human self-destruction the rat becomes the victor species to next inherit the earth. This is a figure used in Günter Grass's novel "The Rat" (1989) in which the 'she-rat' narrator explains this to the last human on earth. This figure even extends into non-fiction in the discourse of the natural sciences, in which the idea that humans and rats share forms of a common history, and that rats will grow with vigour when human beings decline, are deeply embedded (see Colbert 2001).

Conclusion

This chapter sought to name some key moments in the shifting of human-rat assemblages and the forms of co-constitution that these assemblages engage. In a variety of contexts, the rat as affect is able to mobilise actors in a huge variety of different ways, forming multiple themes in Western cultural history. This chapter sought to emphasise the changes that occurred in human-rat assemblage in the 18th century in the move from rat as pest to rat as invader, then the 19th century with the creation of sewer spaces. Here the rat moves from an origin in the wilderness requiring acts of the *expulsion* of rats *back* to this place, towards origins, central to the constitution of the modern rat, on cultures 'inside' necessitating a *cleansing* action of rats from certain spaces.

Some of these themes and figures are especially important for the following chapters, playing through different methods of capture and eradication in Victorian and Pest Control assemblages.

Chapter 2 – The Victorian rat

Introduction

This chapter now turns toward an analysis of two practices of rat control, management, capture or eradication that operated in a Victorian assemblage. These two kinds of traps were used in *particular* ways through the practice of rat-catching, coming into contact with a range of different materials, linguistic and non-linguistic, chemical, affectual, and disciplinary, and in this meeting enacted and performed different subjectivities (rat, dog and human) and spaces (urban and wild). The main axis of this chapter will surround the move from the use of the 'open' trap (through which the rat was caught in and returned to an external wilderness space), following which the chapter will then examine the use of the 'breakback trap' which was used to purify 'indoor' spaces from a newly formulated rat – the rat that originates *in the urban* (the contemporary constitution). This key shift indicates a change in the human-rat assemblage in the Victorian era, examined in the previous empirical chapter and illustrated in *Figure One.*

This chapter will encounter different rat and human subjectivities and expressive powers in Victorian rat-catching, came about as products of the assemblage; this included the articulation of different 'rat habits', the place of the rat-catcher in Nature, and even the escape or transgression of the rat from the act of capture in many cases formed a part of the expression and territorialization axis of the assemblage (the transgressive rat that evades being killed in certain ways became an instrumental figuration in Victorian rat-catching). It was these expressive powers that made the practice durable and able to perform a wide range of spaces.

Rat-catching in this context produced a very particular kind of rat and human. This production was not simply in the realms of discourse, perhaps

being a discursive 'mapping onto' prediscursive rat or human bodies. Much of the production of different bodies in the assemblage instead was non-linguistic, for example the rat that eats liquid oatmeal is produced by a trap that uses liquid oatmeal: the trap and practice create the contingencies and the materialities that produce different bodily expressions. Furthermore, this assemblage involved significant material investments (in the production of traps, in the control of hunting dog heritage, in the labour of rat-catching, or in the discipline of pestology to name a few examples). Therefore this analysis is not one that seeks to uncover rat-catchers cogito representational formulations of the world, but attempts to demonstrate the *acting* of more-than-human materials in the taking-place of different means of trapping. In both instances, a wide range of materials, including differently formulated animal and human bodies and expressions, genetic heritage, tools, traps, and spaces were involved in rat-catching practice; a study that focused on discourse as a realm of thought would not account for these different becomings.

This chapter deals with the practice of 'rat-catching', a practice with a very clear geography, exemplified in its classification as a '*country* sport'. This practice was engaged with by a perhaps 'notorious' Victorian subjectivity (Ritvo 1987), the aristocratic hunting class man, with a particular relation to and mastery over nature (for example, through his access to centuries of genetic canine heritage). As illustrated by the timeline at the start of this dissertation, this period (generally dated from 1830 to 1900) covers many important and marked changes in human-rat relations: rats were separated from mice and into brown and black species, sewer construction projects developed an important space of rat habitation, but most notably for the study of rats as vermin, recourse was sought from this country sport during a period in which the rat was reformulated as a particularly urban threat, no longer a wild creature, pest or a threat to the balance of nature. Rat-catching here became the central tool for the destruction of rats and the performance of a specific kind of purification of rats from spaces of human inhabitation. This allowed for production of a – however unstable – Victorian 'rat-free' domesticity; the rat-catchers' special relationship with and

knowledge of animality (both 'vermin' and 'working'), essential for the performance of this practice, became particularly valued at this time.

Furthermore during this period, this assemblage considerably reformulated its object. Rat-catching, a practice played through spaces of Nature, with a natural pest as its target and game, was demanded in the Victorian period to negotiate and figure a very urban kind of space and target animal. Instead of new assemblages of rat catching appearing to catch rats in these spaces, we find that the 'country sports' "immutable mobiles" (Thrift 1996) enabled the performance of rat-catching sporting practice in these very radically different spaces of operation. Examples of these mobiles (or assemblage components) include: 'the hole' as an operator – a site that initiated rat catching practice whether in floorboard or hedgerow; a further example is the role of rat burrows and tunnels, which may be blocked by tree root or lead pipe. Nonetheless, some differences that this changing space produced were radical, including a new ontological 'origin' of (urban) rats as 'coming from' somewhere 'before' the rat-warren; country rats being already in nature had no such origin. These re-expressions and reformulations of the assembled parts of the rat-catching assemblage will form the theme of this chapter.

As a window onto this key shift, this chapter will orient itself around two types of trap used in these two different spaces – the open trap and the breakback trap. These material objects not only helped this dualistic ratting geography to be *made* (i.e. not just *reflected* in the traps), but they also had particular *agencies* in reformulating the assemblage. The two parts of this chapter will start with the basic possibilities of the two traps, and then open them up by demonstrating their uses in these two periods, and the ways in which they brought various knowledges and other actants into being (e.g. the rat that can be destroyed).

Opening remarks on 'open' and 'breakback' traps

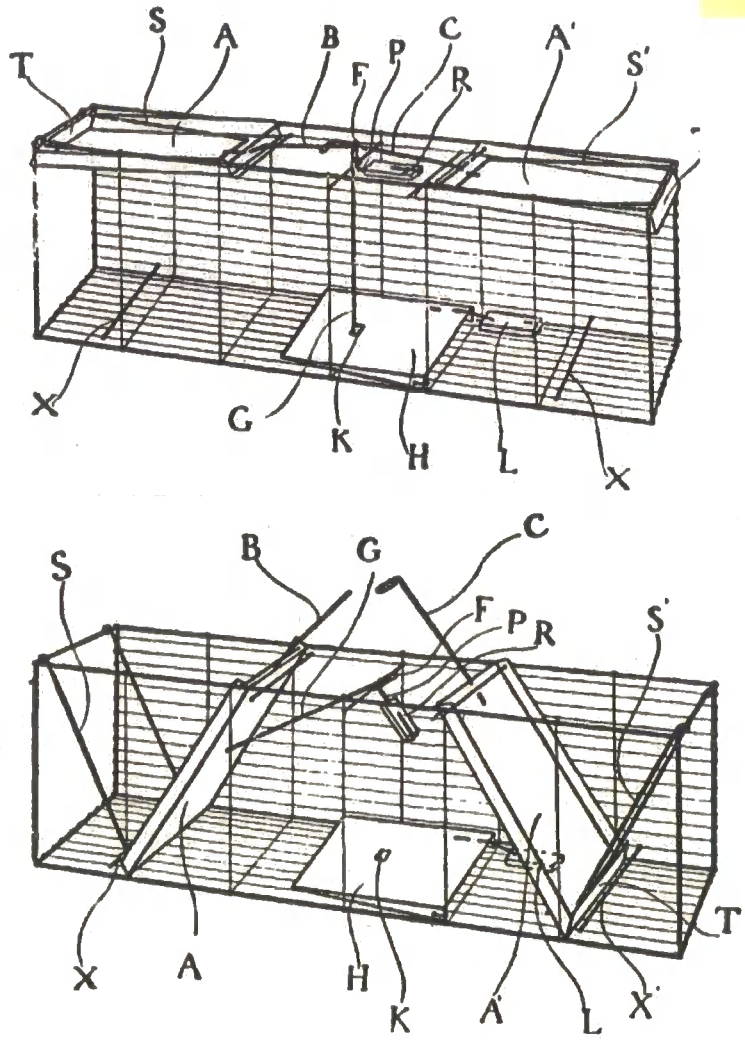


Figure Five. A large open trap with swing doors. Trap is shown in 'set' and 'unset' positions. Source: Bateman 1979.

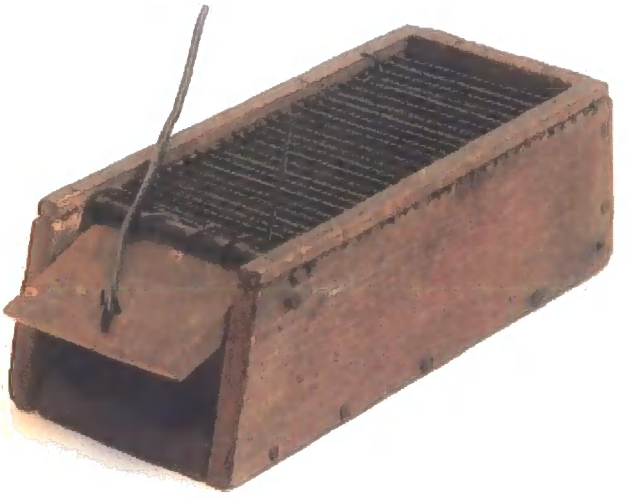


Figure Six. A wooden open trap. Source: Artefact of the University of Reading Rural History Centre.

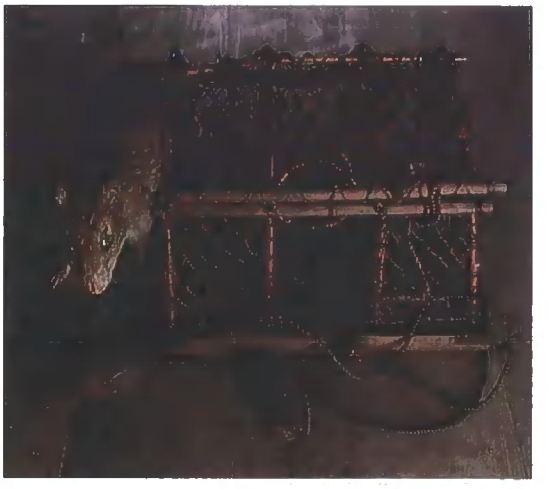


Figure Seven. Another open rat trap – trap door released by string. Source: Museum of London object number 72.18/45

The 'open' or 'live' trap, as illustrated above, refers to a trap that captures living or uncorrupted bodies of animals in a variety of different ways. Open rat traps are sized and shaped around rat bodily expression and composition: an entrance is sized around an anticipated rat circumference to allow for ease of rat

entrance and the exclusion of larger unwanted animals. It utilises and generates a range of rat capacities to ensure their capture, including the scent and attraction of a range of baits that could be kept inside, and through premeditated placing that interrupts anticipated lines of rat movement (including 'runs' which may be made as a result of repeated rat passage through grass, or by holes identified as of rat making, to name a few possibilities). The aim is therefore to deterritorialize the (singular) rats' lines of movement, the rat who is also already involved in territorialising with patterns of affectivity and connection with its surroundings. The event of the trap dramatically recodes this line of movement; it applies a new grid of identifications and categorisations to it.

Through a one-way or trap door, initiated by the force of a rat's body against a lever/sensor, and the use of materials unmalleable to rat bodies (e.g. the steel caging seen above), the rat is confined or kept *in place*. And yet the rat is often deemed out of place by the very premise of the labour of trapping, as a process of the removal from a rat from certain spaces: such is the undecideability of the place of the rat in that the resolution of the trapping process is the spatial containment of the rat (here the rat is in place) from a space from which it originates and can be 'returned' (also 'in place'). This paradox is emblematic of the ways in which traps can disrupt, affirm or recode various spatializations.

The importance of this *capture* and keeping-in-place can lie in the ease by which the captured rat may then be killed, but the *live* capture of a complete and animate rat body can be further exploited for reterritorialization in various other assemblages that demand these rat bodies (e.g. for fur, for unspoilt food, or for rehunting).

Figure Eight. The common spring-loaded breakback mouse and rat trap made by Victor, an early trap mass production company. Source: www.neaca.com

The breakback trap has a different set of possibilities. These refer to the range of steel traps that have a trigger- and spring-operated "jaw". As the name suggests, it breaks backs, or shatters backs and holds them in place. This trap is even more closely aligned to the rat body, not only by sizing itself to 'a rat body' and through placements that easily interrupt lines of movement, but also by orientating the spring mechanism and steel bar to the horizontal alignment of the running rat body. Depending on the importance of their placement, they may be baited (for attraction) or unbaited (if placed in lines of movement). They aim to kill the rat, but this isn't necessary for their operation given the bar may hold a rat in place (leg traps are not useful for rat catching in this respect because "rats can easily gnaw their trapped limb" off and thus transgress the practice: Bateman 1979 pp28). The trap here produces an animal that walks, travels, is sensory (including smell and taste), has a size and shape, and is individuated for being killed. Unlike the live trap, the breakback is no container for capture and the paralysed rat cannot be reterritorialized so easily, so this places an emphasis on the use of the breakback in rat *eradication* rather than capture. Due to the sensitivity of these traps they must be sheltered from other forces that may move

it, and as such readily aid a performance and sedimentation of 'interior' spaces and territories. Their small size and simplicity allows for easy manufacture and placement in a range of small spaces.

These two kinds of traps were used in *particular* ways through the practice of rat-catching, coming into contact with a range of different materials, linguistic and non-linguistic, chemical, affectual, and disciplinary. This chapter now turns therefore to examine the particular subjectivities and spaces these traps produced as a part of the Victorian rat-catching assemblage, focusing on how they were enacted and performed.

Ratting and the open trap

Figure Nine. Illustration of the Victorian rat-catcher, a co-constitution of human and animal, with caging. Source: Museum of London artefact.

Figure Ten. Edmé Bouchardon's 'Les Cris de Paris', featuring a seller of rat traps (here open traps) Source: Burt 2006.

Figure Eleven. Jack Black, 'her majesty's rat catcher', the most famous and archetypal rat-catcher of Victorian London. Source: Mayhew 1851

The open and breakback traps were both used and gained a particular expression through the practice of ratting, which was (and, in fact, still is) a country sport, and central in performance of managed natures: rats are a key target pest animal, being a common and destructive mammal that can be hunted with dogs. As a sport, it is oriented towards places of rat habitation, with the aim of 'flushing out' rats from hidden burrows and pursuing them with dogs – the identification of these rat dwelling places is absolutely crucial to rat-catching. Once flushed, rats may be captured, killed, managed, and used in a variety of ways. Ratting also created a range of human subjectivities, not only a leisure-

based 'hunting class' engaged in nature mastery and the pursuit of a fleeing animal, but also a small number of professional 'rat-catchers' whose sole occupation was in killing rats and flushing burrows in farmland, paid for by agriculturalists per rat body (Matthews 1898). H.C. Bartley (1911), one of the many rat-catchers to write about his profession in the Victorian period, lists the essential equipment for a country ratting trip: a bag of ferrets; a spade for digging out rats or ferrets (or to "mump rats in a hurry" – when used in this way the spade *becomes* the rat-catchers "musket": Bartley pp24); caging for carrying live rats; terrier dogs; netting or a hand-net; open traps or 'trap boxes'; and a pair of hands (*hand*ling rat bodies was not yet disease resonant).

This list demonstrates the vital role animality had in the constitution of the rat-catching assemblage, and the variety of animals that were put to work in the hunting of rats (making them become 'working' animals). These included the cat and the mongoose, but more frequently ferrets and terrier dogs (Bartley 1911). Ferrets were essential for their rat-size and their noses – they could easily be placed in a rat hole and used to traverse rat-made passages to 'sniff out' and flush rats. To this end, ferrets were kept "in a wild state": in their supposedly originary state, where they are aggressive and unruly, and without cultural interference (Plummer 2000). As will appear again in this chapter, this was not an unruliness that enabled a *transgression* of the ratters' orderings; instead it was deployed as a means of effecting certain methods of capture. Bartley demonstrates the complexity of ferret unruliness in his discussion of the proper keeping of ferrets. They should not be regularly fed he says, and especially not before a job, for this will make them "lazy and unwilling to work" (Bartley 1911 pp23). In doing so, they will cease to be wild (a form of unruliness that can be used in ratting) and become lazy (a different form of unruliness that hinders rat destruction and reduces profitability). Hunger is used as a means of "making them keen" to "*want*" to do a job (Bartley 1911 pp17); it is a perplexing means of enhancing or *supplementing* their natures as "courageous" (pp12), "vicious" (pp28), "wild and savage" (pp11) animals. Likewise, components of ferret bodies, such a good hunting heritage, are used to ensure a properly savage

animal, as well as their age (younger ferrets are braver because they have not yet *learned* the vicious bite of the rat: Bartley 1911).

Terriers however must not be unruly. They must be disciplined, mastered, and taught in a variety of ways their proper place in the order in nature. The spaces "made for man" (Bartley pp39) must be separated from those outside these spaces through the disciplining of dogs: dogs *themselves* must recognise their place in a spatial ordering that affirms their mastery. When they are disciplined in this way, they are then a kind of docile body able to be taught how to kill, how to return to their masters, how to differentiate between rat and ferret (important in the speed-intense event of flushing), all though training with live rats (Bartley 1911 pp49). This teaching denotes an intelligence that if refused creates "fool[ish] dogs" (pp49), irrational, unruly and unprofitable dogs. Their bodies were disciplined through a range of other 19th century technologies, including the control of terrier dogs' heritage. They must not be "of doubtful parentage" (pp65), instead they must be of good and civilised "aristocratic descent" (pp42). Once this proper order is affirmed and the docile body has been created, the dog can be conversed with; as Bartley explains, his dogs *tell* him where rats dwell. He speaks of this dog conversation in an intriguing story in which one of his dogs tells him that there is a rat under a kennel: "she says quietly – here's one" and "points" to the kennel (pp49). Bartley "tell[s] her" that "she must be stupid" for thinking a rat is under a dog kennel, and "she for a moment seem[s] in doubt", but he is hugely surprised to find that rats have indeed made a dwelling there (pp50).

Animality in the rat-catching assemblage therefore aided the performance of rat-catching by the way in which such animals could be disciplined. Discipline in assemblage logics refers to the ways in which corporeal multiplicities (defined by singularities of the assemblage – here machinic interaction of the dog's bite or the nose) can be programmed for the rigorous repetition of certain plans of action, done so through a set of disciplinary practices. Here, dog and ferret affects (active and passive) are produced for their catalytic effects – that of fierceness or courage, used in the operation of effective rat-catching practice.

Following from Deleuze and Guattari's "Anti-Oedipus", this machined desire could be said to be paranoid-fascist rather than schizophrenic, for they ways in which this desire is rigid, repetitive and overcoded – the animals must be energetic but not unruly (producing deterritorializing effects): their intensities must enable the act of rat-catching.

In this way, and curiously for a period so intent on separating automata animality from rational man, there is a vast array of dog, ferret, rat and human affects, an attribution of animals with otherwise distinctly human capacities or behaviours in events (what some might call anthropomorphism), and a frequent amalgamation of human and animal agencies in rat catching practice. There are countless examples of animals feeling sensations, displaying emotions, experiencing intensity: ferrets use great "courage" (Bartley 1911 pp105) and "bravery" (pp110) and should get Victory Crosses (pp108) (awarded for "valour in the face of the enemy"). Temptations of laziness abound though as a recently-killed rat in a warren creates a "warm bed" for a ferret: they must then be dug out of this bed (pp101). Dogs "take pleasure" (Rodwell 1858 pp229) in their work and "enjoy the sport" (Bartley 1911 pp38); rats "dread the human voice" because of their frequent "*experience* of it" (pp125); rats are as cunning as dogs (pp117), dogs are as clever as lawyers (pp101), children behave just like dogs when they see a rat (pp88), and Bartley equally avoids both men and beasts with objectionable characters (pp48). In one story, the dogs must work inside an aristocrat's house, inside the place of the *masters* of man; the dogs perform this with expressions of emotion: they become "shy", "bashful" and "stupid", a heightened docility that the rat-catcher has difficulty negotiating (pp90). These disciplinary techniques, including the working of disciplinary power and docile bodies, and in the coding of irrational and unreasonable bodies against rational bodies (Foucault 1973), had considerable and substantive implications for animals themselves. These techniques are not merely discursive translations *onto* non-human bodies (as passive objects); instead, the understanding of these animals of the forms of discipline and power relations, of aspects of the practical enunciation of the assemblage, was essential for the operation of that

assemblage – dogs *themselves* must recognise their place in spatial orderings. In this way dogs, like the dog masters, especially recognise their force and intensity in certain territories, such as the aristocrat's house – the dogs understand the territorial practices that figure them out of place in these spaces, reducing their capacities for the formation of affects and carrying out the practice of rat-catching. This masters notes how this is a rather radical recognition of the role of animality in the production and performance of practice, a role that, if taken through discursive modes of interpretation, would subsume the particular form of animal agency at work here.

In this way there is a recurrent muddying of agencies and admission of co-constitution of human and animal in stories of rat-catching practice. Despite, as will be elucidated, a key part of the operation of rat-catching is based around the performance of *mastery* (best put in William's assertion that the rat-catcher is above all "his own master" Williams 1898 p61), and although *figure one* at the start of this dissertation marks this as a period of an individualisation of rat-catchers, this does not mean that this 'individualisation' was taken to some ontologically primary unit such as the human individual. Instead, the 'rat-catcher' in Victorian rat-catching marked not only a human individual, but also a range of other bodies: countless drawings of rat-catchers from this period included dog, ferret, cage, trap and spade as central in rat-catching subjectivity (see *figures nine and eleven*). As such, the boundaries between human and animal become blurred, (as elucidated by both Rodwell, 1858, and Bartley, 1911, when they describe how dogs and owners come to be the same character; how dog and owner will frequently be both at once bright, shy, quarrelsome or idle. This 'character' marks a becoming that implicates both dog and human - the character of the rat-catcher does not ontologically start from either human or animal body). Rat-catching practice in the rat-catching assemblage is therefore one of marked co-constitution in which the expressive bodily powers of heterogeneous others are absolutely crucial for the practice of rat destruction.

The animality that formed part of 'the rat-catcher' was deployed as the natural enemy of the rat, and thus superior to technological or cultural methods of

rat destruction (including traps for use 'inside', and poisoned baits). Hogarth (1929) composed a list of the most effective methods of rat destruction, picking those that were both scientific and those that "ally with nature" (pp 38). This included the Rodier Method, which involved discriminate killing of female rats caught by dogs or live traps and releasing the males, leading to an overpopulation of males. This would, supposedly, naturally lead them to "persecute the females" until they "cannot breed" (pp38), leading to a reduction in the rat population: a result that had "obeyed the laws" (pp39) of both science and nature, which, he asserts, is ultimately the only way of conquering her (sic) (pp39).

It is important to note however that *rat* bodies are a markedly different entity, perhaps most strikingly demonstrated by Bartley when he asserts that dog and ferret go to heaven (and if you mistreat them they won't let you in the doors), with rats absent from this event (Bartley 1911). Rats are not talked with, instead they are "bewitched" or "tricked" or fought with, but never is there conversation – it is not necessary for the process of capture, and in fact intentions must be kept hidden from the rat for practices to be effective, although he is "devious" and often finds them out anyway (Rodwell 1858 pp52). Rats are experiential and affectual bodies, but unlike the dog and ferret, crossings of the human-rat divide are constituted by intentionally devious characters: rats are "assassins", "plunderers", "lodgers" (Rodwell 1858). Rats here are a feeling and thinking that work *against* the assemblage, whereas other animality works *with* the assemblage. Much like Heidegger's broken hammer that is imperceptible to the task until broken, rat bodies (and their thinking and feeling) are ontologically separated from the rat-catcher as an obstacle to overcome. Thus rats become assassins and schemers and a range of negative characteristics.

As we have seen, rats in Victorian rat-catching are affectual and experiential bodies, bodies that in different cases think, taste, fear, scream and smell, and this expressions work against the rat-catcher in the practice of its destruction. Crucially though for the operation of the assemblage, 'working

against' is *not* a *deterritorialization.* Instead it is figured in a variety of different ways to actually work *with* the rat-catching assemblage. One key example of this is the figuration of the event of 'bolting': the moment where a rat runs ("flees") from its warren after a confrontation with a ferret. This is usually read as the juncture where the "fierce" rat admits defeat and a new affect takes place, moving this new "*fearful*" rat away from the conflict (Matthews 1898). This high speed flight could be witnessed as an escape from the rat-catcher; an overcoming of the techniques and abilities available to this actor; a line of flight taken by the rat as its body moves from being an object of capture to being free-from this overcoding. Instead, this flight is used in a number of ways to work as part of the assemblage. The movement of rats from a warren becomes a process of "flushing" – of *expelling* the rat and recoding its place of habitation as an empty or rat-free place, of reterritorialize the warren as a "clear" place (Matthews 1898 pp 28). Nonetheless, this reterritorialization is not a closed affair until the rat is expunged, or else there is a constant threat of the rat returning.

Flushing is used therefore to effect several different methods of rat capture: the hunting terrier, the hand-net and the live trap, all oriented towards the "rat-hole". This complex space is, among other things: a place of rat habitation that the rat dwells *in* (a place 'behind' the hole); a *point* marking the boundary between an inside protected warren (that cannot be seen *beyond* by human eyes Matthews 1898) and an outside "hunting ground"; and a site of entry and exit to and from these different spaces. It is the place where the rat leaves the burrow, and in that moment becomes-flushed. As such, before flushing commences, these "holes" are guarded by net, by trap, by hand and by dog, anticipating this flight. It is therefore considered greatly important for the rat-catcher to isolate the *entirety* of all the holes surrounding the discrete space of the warren; it is the first step in the practice of rat-catching. Holes are then guarded or blocked, forcing rats to flee through selected rat holes; fleeing rats are then captured by hand, net or trap, or failing this they enter the "hunting-ground" – an open air space that provides a clear line of sight for pursuit by terrier dogs. Rat-catchers therefore favour holes that *face* the hunting ground.

This space, being devoid of harbourage for rats and 'outside' the rat-hole, is essential to facilitate the "working" of these hunting dogs. It is here that their bodily capacities gain their expression, in speed, in biting, in strength, and perhaps most importantly for the "profitability" of the rat-catcher, in the ability of the dog to differentiate between a fleeing rat and a non-prey ferret. It is also here that the affects of "joy" and "excitement" take place through the rat-catcher (as both dog and human), an attraction to the profession and the sport frequently evoked in writing by rat-catchers of this period. Less discussed in these writings is how these rat-holes are found and how they appear in country ratting: to them it is self-evident what they look like and where to find them. Instead, a variety of materials are named as featuring holes: "hedgerow" is most frequently mentioned, but also named are the edges or surroundings of the "brook", "barn", "field" and "pit" (Matthews 1898) – here the holes become part of the performance of these features, appearing at the limits of these bodies.

One of the main ways in which this 'working against' by the rat is figured as part of the rats body (rather than through an event like bolting) is through the undifferentiated ability of "*cunning*". This "cunning rat" appears frequently throughout Victorian literature. Failure at the event of trapping or catching is placed on this cunning, manifesting itself in various character traits. The rat-catching assemblage therefore *creates* this cunning, not only as an element to overcome (i.e. 'discursively'), but also in creating the situations (such as the empty trap) that produce the escaping rat. In this way, methods to overcome the cunning-rat also necessarily become part of and enable this ability: cunning does not pre-exist each method. Matthews describes the cunning rat whose warren escapes his finding, only to find it underneath a dog kennel. This, being an improper, dangerous or "queer place" for a rat, serves as a demonstration of its cunning (Matthews 1898 pp58). Bartley describes rat-catching in a haystack, and the failure of his ferrets to flush rats from it, only for him to discover that the rats had made a circular run inside the haystack. To combat this he, in an act of his own cunning, places "stop boards" into the haystack to create dead ends in this warren (Bartley 1911 pp28). As Hogarth writes, "cunning must be met with

cunning" (Hogarth 1929 pp112), and for Hovell "it is essential that the trapper match his cunning against that of the rat, and the most successful method of *outwitting* them" (Hovell 1924 pp62 emphasis added). The trap therefore is cunning in the way that its *intentions* are hidden from the rat or the way in which it interferes with the rat performing this ability; the favoured hunting animals are chosen for their "slyness" or "sharpness" that overcome cunning – mongoose are thought to be less sly and are therefore not as frequently selected (Rodwell 1858 pp208).

When failure is explained in terms of the success of the rat, this undifferentiated ability is the point of recourse, but when the rat is isolated as an animal to be *known*, supposedly separated from the event of rat-catching, cunning is elucidated through a variety of discrete characteristics. In this way, all the rat-catchers of this period devote a chapter of their books to the "General Characteristics of the Rat" (Rodwell 1858) or to "The Habits of Rats" (Hovell 1924). Here, knowledge (of they ways in which cunning manifests itself in different abilities of the rat) is a key material in the performance of the rat-catching assemblage; it is a prerogative for rat destruction. What is interesting is that, although the rat here is described in isolation and supposedly separate from rat-catching, purporting timeless intrinsic characteristics that 'come from' the rat that have a non-situational universal expression, the characteristics selected are instead ones which enable extermination in a variety of different ways – they are features that take place in the rat-catching assemblage, sometimes essential to its working.

As an example of this, one of the key characteristics or habits of the rat, and a key expression of its cunning, is its fecundity, a theme covered in the previous chapter. In a variety of ways, each rat-catcher is keen to explain how quickly and continuously rats breed, considering this to be timeless knowledge of rat cunning. This knowledge nonetheless acts in the assemblage in two important ways: primarily, it allows rat-catching to be carried out all year round, unlike other prey animals that have a hunting season, oriented around their period of breeding; it also establishes the rat as a significant pest, requiring

significant specialised attention, and thus sediments the rat-catcher as an imperative tool in the reduction of damage to crops. Another universal rat habit frequently evoked is its vicious and devious bite, but it is impossible to speak of a mouth that bites in isolation. Instead the rat frequently bites and harms hand, mouth, nose, ferret, dog and human, leading to wounds that "fester" or "go bad ways", which render the body 'unworkable' for the period of recovery (Rodwell 1858). Dogs and ferrets are therefore trained to fight and avoid these bites, often by pitting them against live captured rats with cut teeth (and complicating the assertion that ferrets are "in a wild state" and separate from cultural forces). The bite therefore becomes a major rat habit because of its role in the rat-catching assemblage. The same goes for their viciousness when hungry (because they were kept in cages without food, and because of the ways in which hunger is used by some baited traps), the speed of their movement (because this is a challenge to well bred hunting dogs), and the way in which rats kill other rats that have been mutilated (rat-catchers therefore are confident in letting injured rats *escape*).

This *universality* of rat behaviour does not simply stem from an enlightenment world-view, for this habit of killing those that have been mutilated is also shared by ferrets, but it is discussed in a markedly different way. When ferrets kill "their own kind", this is due to a failing of their keeper to separate them or to avoid creating a situation where this capacity can be produced (Bartley 1911 pp18). This is a distinctly situational expression of character, very different to the rat's non-spatial *possession* of character. The ferret's bite is also treated in a different way: if a hand is bitten it is a fault of the keeper in not handling them properly and for providing something that looks "like dinner" (Bartley 1911 pp22); if the rat bites a hand it is because of their naturally intentional and cruel bite that seeks expression regardless of situation and which only counter-cunning can overcome. Although a technique of power-knowledge is in operation here, universalising and controlling its object and limiting its possibilities towards flows that can be utilised in rat expunction, the object of knowledge is not just the body (like Foucault's disembodying clinical gaze, Foucault 1973). Instead, intentional

capacities such as calculation and viciousness, as well as sensate capacities, unusual for a discourse on animals at this time, are also essential knowledges, and key materials in the rat-catching assemblage. In the rat-catching assemblage, nothing about the ontology of the rat (what the rat *is*) 'escapes' the methods of its capture. All assertions about the nature of the rat are deployed in order to enable its extermination. This corresponds to the constitution of assemblages elucidated at the start of this masters. Although components of assemblages (such as, in this case, knowledges about the rat) can be 'unplugged' and used in the constitution of other assemblages (as such knowledges indeed were in the Victorian era), as components of the rat-catching assemblage they *act* towards rat-catching. In the assemblage, the expression and constitution of ontological claims about the rat arise as a result of their complex relationships with other entities in the assemblage. Knowledges therefore do not just enable rat extermination, but define the constitution of other bodies; indeed the performance of the rat-catcher as master crucially relies on knowledges such as these, along with an interaction with a range of other relations and components.

The operation of open traps

In light of the role of animality, rat ontology, the country ratting landscape and the rat-hole, we can now uncover the particular way in which the open trap formed part of and helped perform the materially heterogeneous rat-catching assemblage. The rat-catcher, an ontologically heterogeneous figure including human and non-human agencies, catches rats in a landscape of smooth space – there are no boundaries to this space marking a point where rats belong. Through country rat-catching with open traps, rats are caught in a wilderness space from which they ontologically 'come from'. Open traps do not help with expurgation or banishment efforts. Instead they catch rats, here a wild pest and

parasitic on certain resources, as a means of decreasing the damage caused by rats.

In country rat-catching practice, the rat-catcher isolates places of rat habitation by looking for traces of rats in the country hunting ground, including 'runs' and 'rat-holes'. The open trap is then placed along these runs and near rat-holes, in anticipation of rat movement along these lines. The rat as a cunning and deviant creature must be outwitted, so the trap is camouflaged to disguise its intentions. The trap is then left for a period of time, sometimes after a 'flushing' process, awaiting the return of rats along these habituated lines of movement. The live capture of rat bodies is often important for the ways in which these live bodies can be reterritorialized in other assemblages.

Figure Twelve. Illustration depicting one of the Victorian's many rat pits. Source: Museum of London, object number A19092.

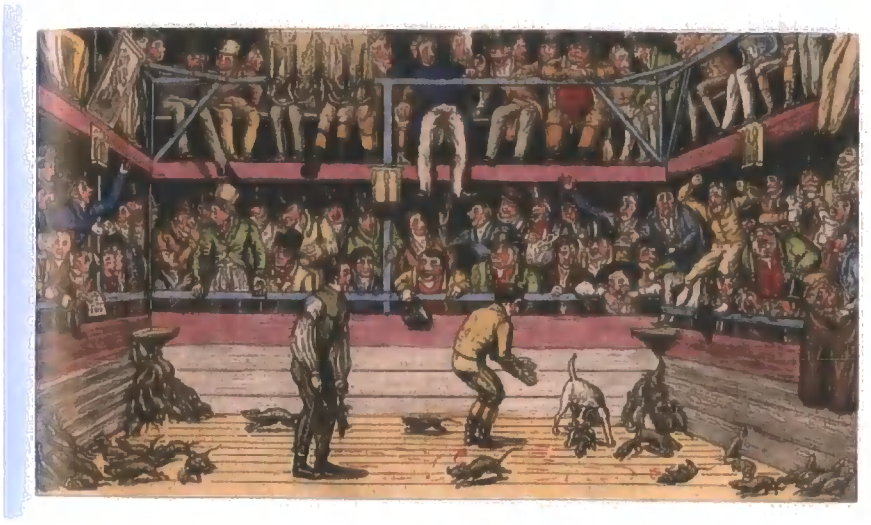


Figure Thirteen. A further illustration depicting Billy, a famous terrier dog, during his killing of "100 rats under 12 minutes." Westminster pit, May 1821. Source: Burt 2006.

The *live* capture of rats was instrumental in the continuation of the Victorian rat-catching assemblage, and it is therefore after the practice of trapping that the real economic value of the open trap becomes apparent. Dead rat bodies were paid for by the landowner, but live bodies could also be reterritorialized in other assemblages in which their capacities as live animals was of importance. First, they were sold to "gentry" as sport for trying and testing their dogs, released onto the open field for entertainment. Victorian rat-catchers also profited from supplying rats for coursings at beerhouses, where circular 'rat-pits' were filled with live rats (the pits later became circular so that rats could not get shelter in corners), and bets were placed on the abilities of different dogs to kill a large number of these rats. Each rat-catcher speaks of receiving orders for live rats as part of their practice, and to understand the scale of this supply, Mayhew writes of a winning dog named Jacko who killed 1000 rats in one pit in just over an hour and a half (Mayhew 1851). The trapping and *keeping* of large numbers of live rats (Matthews 1898 describes keeping 40-50 rats in his carry-cage) was therefore hugely important, and open traps, as preservers of live rat bodies, were treated as a particular necessity.

'Inside' spaces: the breakback trap

The breakback trap had no use in ratting as a country sport, yet during the Victorian era it eventually became instrumental for the rat-catching assemblage: the component parts of the assemblage entered into relations of exteriority with other component parts. By the middle of the 19th century, rat-catchers found themselves demanded to catch rats in a new landscape – an urban environment, where hostilities towards rats reached particular resonance not just as a pest on material investments, but as a dangerous and objectionable creature out of place in intensely bounded human spaces. As masters of the rat species (owing to their relations with specialist kinds of rat knowledge as well as effective rat-catching practice), rat-catchers were considered "the principal agent" of rat "extirpation" (Rodwell 1858 pp191).

Rat-catchers in this period therefore started to figure two very different geographies in the operation of their practice: a 'country' landscape with a set of distinct features, and an 'urban' environment with a different set of materials and spaces. This division was not just a mental construction or an imaginative geography; it related to two discrete practices engaged with by the rat-catching assemblage that in their operation *performed* these different spaces. When Hogarth's rats make warrens in "stacks", "stables", "chicken-houses", "granaries", "banks", "out-houses", "hedgerows" and "fields", they originate in a country landscape. When they dwell in "libraries", "groceries", "warehouses", "works", "factories", "shops" and "dwelling-houses", their origin lies in "the sewer" or "drain" (Hogarth 1929). Likewise, Matthews speaks either of "cottage house", "stable", "brook", "barn door", "barn edge", "around pits" and "brook sides", or of "greenhouse", "warehouse", "office", "storeroom", "cellar", "kitchen", "hotel" or "housing block" (Matthews 1898). These features rarely leak into each other, forming a very tight terminology and sedimented geography. *Figure One*, the diagram featured at the start of this dissertation notes the Victorian era to be a period in which both the 'origin' of the rat and the nature of its threat had undergone significant change. Here we find that instead of a sudden epistemic

shift, both these rats (as wild pests both originating in and habituating an exterior nature, and as urban vermin originating beneath cultural spaces) found expression during the same temporal – but not spatial – period.

Victorian rat-catchers nonetheless considered the rural environment to be the proper place of ratting, with urban environments supplementary to what is a "country pastime" (Rodwell 1858 p192). Matthew's descriptions of ideal hunting days are rural, as are Bartley's, who takes his perfect "outdoor" trip through an affectual space where "elms glisten", "birds twitter", and there are smells that make "the feet and heart light and every sense rejoice" for human, dog and ferret (Bartley 1911 pp67-78). He contrasts this with a poor day's ratting, through an urban environment with close buildings and "narrow streets" where "no birds twitter or insects hum" (Bartley 1911 pp80). Nonetheless, during a time of growing hostility toward the rat as a result of the recoding of human-rat co-habitation, and owing to the rat-catcher's mastery of rats, the ratting assemblage shifted in spite of the rat-catcher's intentions (assemblages may change as a result of the multiple agencies of which they consist, often against the will of any one particular body). In this new space there are few possibilities of having key operational features such as a clear hunting ground for the pursuit with dogs, and warrens are made of much less malleable materials (and thus the spade was dropped as part of the makeup of rat-catcher subjectivity). Consequently, the rat becomes harder to catch.

As highlighted in the previous chapter, a profound shift occurred in rat ontology during this period. Not only did an *urban* rat emerge, no longer a wild animal from an exterior nature, but this rat now had an origin 'before' the act and 'outside' the spaces of capture – the sewer. Whereas wild rats were expelled from and back into different spaces of nature, urban rats now came from this sewer space. Another notable change in the ontology of the rat was not only the emergence of an *urban* rat, but also the division of this rat into a variety of spatially organised sub-species. As the geography changed towards more multiple spaces rather than a singular nature and hunting ground, so the supposedly universalised rat differentiated into "drain" rats, "barn" rats and

"stockyard" rats to name a few examples (Mayhew 1851; Rodwell 1858; Baudet 2003; Matthews 1898). Each of these different rats had their own different habits and natures that became an object of crucial knowledge in urban ratting (the influence this had on urban ratting practice will be engaged with later).

An interesting tension arises here between the universalising tendencies of those involved in rat destruction, and the admittance of these new spatialised rats, on where to 'locate' the rats' universal nature. In most instances, it is the different rats' natures that lead them to dwell in their particular spaces and engage in certain behaviours: rat bodies here have a core or interior nature that gains expression. As Matthews (1898) explains, drain rats are "of a dirty nature, and prefer being in the drains" (pp11). Stockyard rats on the other hand are "of a very clean nature" and seek cleaner environments (pp35). On other (much rarer) occasions, it is instead the spatial setting or behaviour that gives rats their nature: in Matthew's (1898) words, the drain rat "exists on ... worms and slugs, and this, I think, causes [it] to become venomous" (pp35). Likewise, Mayhew (1851) expresses his distaste at the thought of eating dirty sewer rats. Jack Black, in response, asserts that "if they are shewer (sic) rats ... just chase them for two or three days before you kill them, and they are *as good as barn-rats*" (pp14 emphasis added). As sewer rat here can become as clean and as palatable as a barn rat – it is able to become that different rat.

The changing geography brought a change in the day-to-day knowledges of ratters towards a detailed understanding of urban structures. This included an appreciation of the nature of laths and plaster, joists, spaces under floorboards, and pipe work and drains that act as gateways for rats to the interior of buildings. It is no longer the edges of buildings that rat-catchers must negotiate, but now the insides: sheltered areas with materials and spaces that rats traverse and reterritorialize in warren making. As Matthews (1898) writes, urban rat-catching involves going to "dirty places", and being caught up in practices that put the body "on the floor, candle in hand" (pp12). This fed into the emerging role of rat-catching in purifying spaces (these inside spaces) of abject elements, affirming

the overcoding of *buildings* as 'rat-free'. This rationalisation of practices of catching urban rats is very different to that used in the expulsion of wild pest rats from their places of inhabitation.

Rats here, as multiplicities or assembled bodies, have vastly ontologically changed (and in more-than-discursive ways). It is clear however that the distinct way in which rats territorialize to make 'warrens' has remained, and this action of rats continues to be a substantive part of the rat-catching assemblage. Nonetheless, rats here are also able to reterritorialize is a vastly different geography and range of materials, including the cavities under floorboards being used for inhabitation, in sewer spaces, and using the many fabrics of buildings. The ability of rats to do this in such a different environment is one key territorializing component of the rat-catching assemblage.

With the articulation of many different rats and rat habits, combined with the difficulties of ratting in confined and previously unfamiliar spaces, the urban rat was able to avoid capture more frequently, and thus it became *more cunning*. The urban rats, being wholly new creatures with unfamiliar sets of habits or natures, presented themselves as multiple units of unexplored bodily territories. Whereas rural ratting is a matter of mastery and skill involved in the employment of various techniques, the still individuated rat-catcher saw his (sic) new task as *innovating* ways of exploiting these new rat's habits in the aim of *discovering* the best method of each rat's destruction (Matthews 1898). Rat-catchers still retained their individuation and mastery as before, and rats were still cunning, but now performance of this mastery demanded multiple ways of engaging with and exploiting new rat habits and cunning. By breaking down a singular 'rat' into different spatialised or situationalized rats (although the taxonomic classifications of the time would have considered this a fiction), rat catchers could more effectively engage with the rat in each location – they could 'find' more valuable ways of killing them. A stockyard rat, in habituating certain kinds of materials, is more effectively lured with familiar baits (e.g. oats).

The culture of innovation often led to the use of very unconventional and multifarious techniques. Bartley (1911) explains his method of finding the location of a dead rat – a new concern for urban ratters in enclosed buildings for the "injurious" and "obnoxious stench" that dead rat bodies make, a reason for "never [using] poison" (Matthews 1898 pp1). To find where the rat has "hidden himself" Bartley releases bluebottles to track him down (Bartley 1911 pp95). Hovell notes the habit of "drain" rats to come out and feed at night. He therefore recommends enticing rats for several days into a building with known 'entry points' (they can't be flushed from drains with ferrets), done so using "liquid oatmeal", a foodstuff thought to ally closely with the drain rat's habits and preferences for sewerage. On the intended night and when the rat-catcher can hear activity the entry points are blocked up, trapping the rats whose habits would otherwise lend them to return to the drains. One then can "have a bit of sport" and "kill them at your leisure" (Hovell 1924 pp174; Matthews 1898 pp11). In reference to the culture of innovation, Hovell explains that "*ingenuity* is required to adapt the methods to existing conditions" and lists many ways in which holes may be blocked, including the use of bags of sand dropped remotely with long pieces of string (Hovell 1924 pp175).

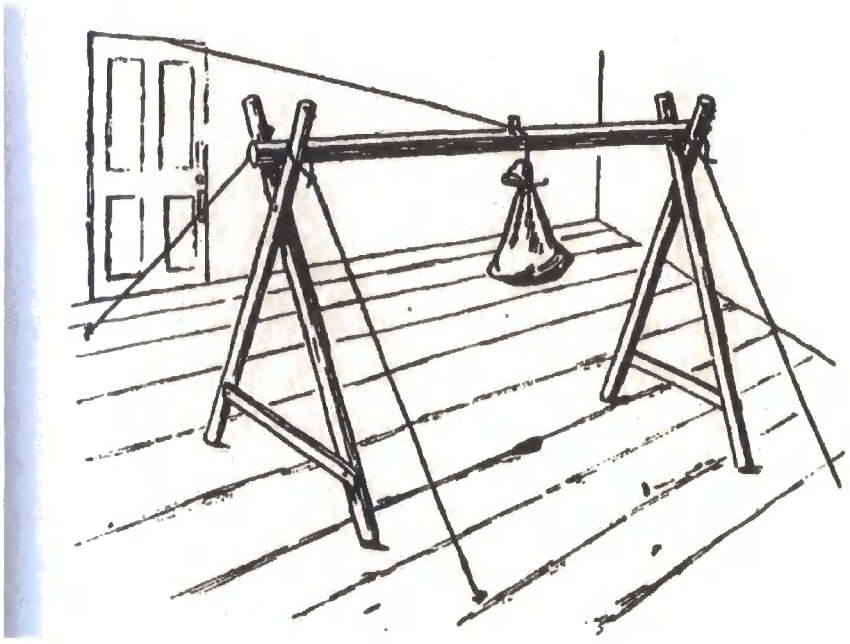


Figure Fourteen. Innovative methods of trapping the urban rat. Sand bag suspended over hole. Source: Hovell 1924 pp179.

In this heterogeneous and less malleable environment, the breakback trap became widely used. Unlike the large and unwieldy live trap, the diminutive breakback could be positioned in multiple places along an enclosed and inaccessible rat-run. These traps were also valued for being small and unnoticeable *to rats* in their navigation of rooms, and more effectively countering rat cunning in 'interior' environments. The traps had to be used effectively however, including adherence to the appropriate rats' habits, and moving the traps and dead bodies soon after capture; inappropriate use will alert rats to the purpose of the traps and render them ineffective. Both Bateman (1979) and Matthews (1898) also write that if a rat is caught but not killed and manages to escape (for example, by "[gnawing] their way through their own limb" Bateman, 1979, pp27), this rat's cunning will increase hugely, making it extremely hard to capture again. To avoid this, rat-catchers often sat with the traps overnight and removed them as they were sprung. Matthews (1898) also speaks of covering and hiding traps with oatmeal, "dirty" or "clean" sawdust, fine soot, soft tissue paper, light chaff or hay seeds, depending on the type of rat and its preference

for different types of materials. He explains that if the right material is used and the traps are placed correctly in runs, rats will "play" with the material, and you will be able to trap "as many as 114 in one night" (Matthews 1898). As a result of these associated techniques, and unlike the open trap, the effectiveness of the breakback is deemed to lie in its *use* rather than the merits of the object (Hovell for example divides his "Traps" chapter, which deals with 'outside' traps, from his chapter on "Trapp*ing*" which covers the use of traps indoors, 1924, emphasis added).

This labour-intensive removal of large numbers of rats from traps (Matthew's "record" was 183 in one sitting, pp16) in often very awkward or inaccessible spaces of buildings brought rat and human body very closely together. Not only did the practice require the bodily presence of the rat-catcher at the event of trapping, there was also little of the modern resonance of the rat as a disease carrier; rat bodies could and should be handled, dead or alive, lest you succumb to "effeminate ways" (Bartley, pp30). In fact, Mayhew talked with a rat-catcher who boasted at his ability to kill rats "like a dog, with my teeth". The primary hesitation he had with doing such an act was the "shame" it brought him to copy an animal in such a way (Mayhew 1851 pp5). Likewise the eating of dirty sewer rats brought disgust not necessarily because of any harm it may bring, but because to eat such flesh marked an uncivilised act. Bites on the other hand are not avoided, and in fact, Mayhew is paraded with scars and wounds by the rat-catchers he meets (Mayhew 1851). Unlike later assemblages, disease did not work as an actor or referent in urban ratting. Instead this would take many decades of conscious political action and networks for the dissemination of particular kinds of knowledge produced in the laboratory setting to achieve this: these networks include the emerging discipline of 'pestology', an 'anti-rat movement' (including the "Vermin Repression Society") and repeated circulation of the risk of 'rat disease' (on these, see Hogarth's "Manifesto for pestology", Hogarth 1929).

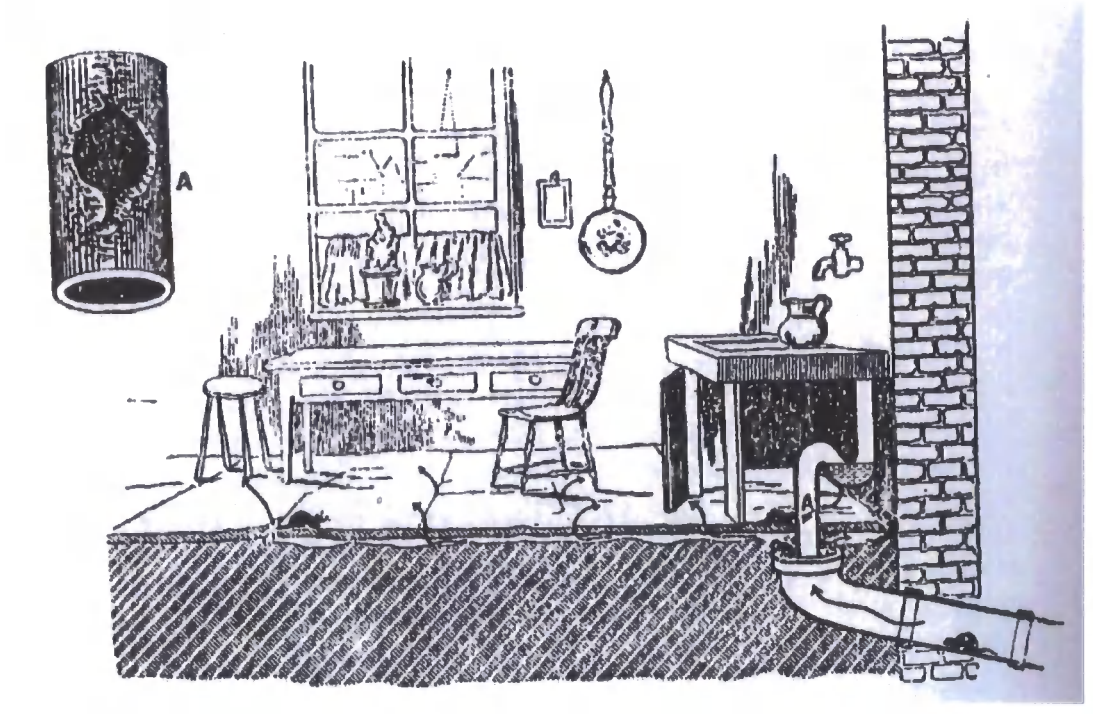


Figure Fifteen. Illustration of "the danger of the unwatched pipe". An early 19th century picture reinforcing the importance of entry points to catch rats. Source: Hovell 1924.

Although the ratting assemblage now produced a very different kind of rat, many elements of both rural and urban rat-catching operated in both practices, and thus the ratting assemblage remained durable whilst producing different spaces and subjectivities. A key example is the orientation of both urban and rural ratting towards 'the hole' – in both cases this space worked as an operator-machine. It was a point of orientation for hand, net and trap; it was a place sought out to commence the practice; the hole was at once a point, an area behind a point, and a zone of transition that marked a becoming as rats passed through the point; and the lines of rat movement that connected holes together, in both cases called 'runs', became primary sites for trapping. Here we see that although the hole appeared in a wide range of materials and spaces, it acted in similar ways in both instances. However, as the operator-machine was in each

case produced from a different set of relations, an examination of these casts light on some important differences between urban and rural ratting. In urban rat-catching, the hole gains a different ontological element as an entry point from an 'outside'. The place 'behind' the hole therefore becomes the space of the outside, and the rat that passes through the hole becomes an invader, or if this passing is repeated, a "lodger" (Bartley 1911 pp91). As with rural ratting the hole is a place through which one clears rats, but instead of being pursued over a hunting ground or banished back into nature, the urban rat is purged 'back' into its sewer. The labour involved in this cleansing was considerable (Matthews explains that cleansing a storey of a building takes a day, dusting cayenne pepper on the joists to prevent rat return during the process, 1898 pp12), and such practices tied into a reconfiguration of the rat that continues to be instrumental in the performance of the spaces of *human* habitation.

Operation of breakback trap

The breakback trap was active in the performance of 'inside' space – it was only used up to the boundaries of the interiors of buildings, being sensitive and needing to be sheltered. It therefore trapped a transgressive and disruptive rat that crossed the boundaries of home or work space; the deployment of breakback traps was therefore an attempt to purify large numbers of rats from these interior spaces. Ratting involving breakback traps, unlike the open trap, was only thought to be completed once all the rats in this inside space had been killed. They were placed in runs and around holes, and as such the urban rat body was a mobile body. Traps were disguised and baited in a variety of ways, making both a cunning rat, and various kinds of spatially-organised rats with differing habits, exploited by different baits and disguises.

Conclusions

Starting from the point of two objects, this chapter has sought to examine the Victorian rat-catching assemblage, demonstrating the ways in which the operation and particular expression of these two means of trapping was produced through its relation with a wide range of materials in the assemblage. Using the idea that components in a social assemblage are characterised by 'relations of exteriority', not forming a congruent totality, this chapter has sought to demonstrate how through the introduction of a vastly different set of materials and spaces to rat-catching practice, the assemblage nonetheless retained its identity as a 'rat-catching' assemblage. Many different components of the assemblage in both cases were translatable through these two different spaces, including the role of 'the hole' as an operator-machine, and various ontological components of the rat, including its 'cunning' and its 'warren' making.

Nonetheless this chapter also sought to demonstrate the ways in which rats aided the performance of two very different kinds of space, producing two diverse rats. *Figure One* indicates this period of transition by the first yellow bar in the timeline. Here, rats have moved from being a wild pest, originating, being caught in, and being returned to a 'wilderness' space, towards a new constitution as urban vermin, originating from beneath cultural spaces. The act of killing rats in the two different ways highlighted by the two traps helps perform this new ontological constitution. With the open trap the rat is caught or expunged from its warren, but no discrete boundaries are performed. With the breakback trap, this object in its action performed the boundaries of buildings, purifying spaces of rats, securing the boundaries and creating a rat-free space.

The next chapter turns towards an examination of a different means of trapping in the contemporary era. This assemblage employs a markedly different set of materials for use in the practice of catching rats. Although some ontological constitutions of the rat permeate both the assemblages (including its origin within the spaces of culture), the chapter demonstrates how the boundaries of these modern 'inside' spaces (those *intensely* protected spaces within the interior of buildings) is performed in very different ways.

Chapter 3 – The rats that Pest Control

Rodenticide anticoagulants and the Pest Control Technician

Introduction – Opening remarks

Modern pest control practice carried out by pest control 'technicians' is invariably constituted by daily visits to a number of sites; sometimes these are first visits, but most jobs are secondary or tertiary checkups. "Repeat visits", those jobs that fill most of the mundane hours after an initial "survey" can be eventful, but each one is quite cyclic; a "treatment" is completed like a checklist – bait boxes are checked, emptied and refilled, signs of continued or abated rodent activity noted, and depending on the level of activity and on whether the client is a contract or a single call-out, another repeat visit may be logged.

Yet after three days of pest control, through carrying out such checklists and practicing the routine of the repeat visit, an unexpected and totally unnoticed change was happening. I never saw a living moving rat; this is an *extremely* rare event for the modern pest control technician. The practice also extends its reach only to the boundaries of abject spaces – the spaces where rats are considered to be doing most of their social living. The pest control technician performs the abject by keeping its body away from these spaces – it is a subjectivity that aims for *professionalism* by staying away from the spaces of rats and operating only in those places where rats "invade". The practice makes its way through the use of poison, traced to the technician through circulating references of diagrams of compounds or through their sale as small neon blue blocks. It isn't just the influence of actor-networks that can lead one to assert that it is perhaps these dyed and scented blocks of poison that do the work of pest control, as one technician 'admitted' (Ecolab interview source).

But on reflection on my third day of pest control practice I 'realized' that the spaces we were working through were as if suddenly littered with rats; not bait blocks or trays or bait stations or marks left by rats, these being the objects

we were regularly dealing with. Instead, everywhere: the echoes of moving rats. Whole new territories were in the making. Buildings, especially their walls, were transformed into possibilities for points of access, holding the potential for displaying the writing of rats: characteristic damage, grease and other signs of activity. Along floor-wall joins, through 1inch-10inch holes, through breaks, up cables and across water: everywhere there were entry points into buildings, everywhere there were rat marks and "motorways" – everywhere there were rat virtual bodies and virtual potentiality, spaces within spaces that contained the possibility of rat territorialisation.

It is tempting, but false, to assert that "in days past" the rat-catchers dealt with rats, whereas now the pest control technician deals only with the technologies of rat-catching. Everywhere 'still', rat bodies were central to the practices of rat eradication; rats being made, performed and performing, virtual and actualized. "I've got a totally different set of eyes on". The technician who I was following laughs: "those are the eyes of a burglar" he says, pointing to the wall-floor boundaries of the buildings. "You're looking for entry points *and* an escape route remember, not just the goods." I am being a rat, the rat-as-burglar. He walks with his hand, 'on all fours', simulating the motion of a scurrying rat as it scampers along the edges of buildings, quickly, hopping, up and into the building through a non-specific entry point and out again "with the goods". On other days, pest control hands can rub past each other, acting out the creation of 'grease marks' by rat fur that are then read as indications of rat presence and movement. Faces curl up in the taking place of affects: in this case the disgust that occurs at the smell of a dead rat – my face curls up when I hear it in story, and it curls up at a later date when I smell one too. The way in which rats and mice eat is also performed – rats eat in one location (a hand takes a large grab of the air) whereas mice nibble erratically (fingers pinch the air quickly and hesitantly). This is what Latour calls, in Hincliffe's words "learn[ing] to be affected" or being "a body in process" (Hincliffe et al 2005 pp649). Pest control is in many ways keen to remove all animality from the assemblage; no longer are there the dogs and ferrets of the rat-catchers and their "primitive ways" (Durham Pest Control

interview source). Instead, the rat is known and killed through deploying technologies of the body; through compounds that ally with biology, the modern rat ontology. The technician laughs at the unprofessional ways of the rat-catcher, and would be uncomfortable with the notion of *being* a rat. Nonetheless, being-rat reinfests the assemblage.

The technician guides me around the contents of his van, something they all found enjoyment in doing, showing me their collections hidden and locked away. Inside there is a pharmacy of warning labels, connecting us to the vast array of chemicals stored here in large airtight tubs, plastic bags or spray cans. They are coloured (blue and yellow "to incriminate me" he says, speaking of events where a non-target body may consume the poison and colour their gut), they are added to seeds, oats, grains, fashioned into balls of chocolate and applied to strips of sticky gum. They are invariably scented; a visually unappealing handful of dyed blue oats carrying a very appetizing smell of vanilla, caramel or even curry, initiated a very confused bodily reaction. Rats on the other hand do not see the oats as 'blue'; the oats-as-blue are imperceptible to the rat so there is no such bodily confusion (Meehan 1984). There is "rat deodorant" for covering the smell of a dead rat, "glue boards" – very sticky and sweet smelling – pumps and hoses, a torch, hammer and spanner, plastic bags, tubs of hand wash disinfectant, and pages and pages of treatment reports, either computerized or logged on sheets of paper.

Unlike the rat-catchers that *displayed* their profession (see the uniform of Jack Black in *figure 11*), there is absolutely no sign of rats here; there are no pictures, symbols or toys, and even the van is unmarked. Modern pest control is remote control – the technologies of this assemblage extend the human subject in markedly different ways to that of the rat-catchers. The technician spends its time laying poison, checking poison, re-stocking poison – it is through these technologies that the rat is killed and cleansed from human spaces. In both rat-catching and pest control the rat is engaged with and actualized, but with pest control the abstract elements of the rat (in this case it's "biology") are actualized

through the unseen workings of poison. The rat body as something to take, capture, reuse, follow after or negotiate with by an embodied rat-catcher is no longer part of the working of the assemblage. Although these techniques occasionally arise in certain situations in pest control, the practice instead deals with abstracted capacities. Pest control does not pursue a 'whole' animal, the moving body, but instead kills its rats through a rational understanding of its biology, creating knowledge that demands the deployment of certain materials or the creation of conditions that will exploit this biology (e.g. the microscopic workings of anticoagulant compounds on the organs). This is not a rehash of a traditionalist virtual-actual split, where the modern rat is in the virtual because they are no longer seen, face-to-face, for both assemblages enact different virtual possibilities. Instead, pest control enlists the possibilities granted by a predictable and unaffectual rat biology, not through the outwitting of a devious animality, and gains access to this through the deployment of technologies that enact this biology in different ways. This deployment is no longer the responsibility of a lone catcher, but the concern of a vast network of pest control scientific departments, laboratories and chemical producers.

Rats it seems, after nearly two centuries of being thrown up in specialized and labour-intensive assemblages that work for their eradication, continue to inhabit 'human' spaces and proliferate a variety of human-animal becomings. Efforts to expunge the rat and to remove the possibility of such becomings ever taking place have instead created more circulating references about the impossibility of its negation. Such success stories of an invading unexpungeable rat, covered in a previous chapter, have reconfigured the target of rat destruction. Instead of lone singular competitors, the rats-that-pest-*control* exist as a "population" that must be checked in a variety of ways (Pest control news 2004). These checks are performed through the use of a few techniques that this chapter now turns its attention to.

This chapter will elucidate on the key components of the pest-control assemblage, very different to those of the Victorian rat-catching assemblage.

The first half emphasises the role of 'rodenticide' and rat knowledge producers, examining how these knowledges are displayed by the pest control technician through a performance of 'professionalism', a key factor in modern pest control for resolving human actor's proximity with the abject rat. Here the role of the 'state of control' is examined, a key object for the practice of pest control. The constitution of the modern rat as 'population' is examined. The second half of the chapter then relates these key components in a study of the use of the bait box in practice. Taking this practice chronologically from survey to completion of a treatment, the chapter emphasises the role of different means of rat signs and practices that are brought into being through the use of the *bait box*, the device upon which this chapter focuses.

The bait box and rodenticide anticoagulant poison

Modern pest control uses a range of techniques including gassing, sonic devices, glue boards and sprays, but the one that is used most often, a key expressive component of the pest control assemblage, and from which these other methods are thought to deviate, is the laying of rodenticides in "bait boxes". This is the 'trap' of the modern assemblage, but it isn't truly a means of trapping or capturing rats, instead being solely a means of killing them. Before examining the use of the bait box and the different humans and rats this enacted object constitutes in practice, this chapter will first outline some key elements of pest control practice, including extrapolations of rat ontology and pest control structure. These will then be used to enrich an understanding of pest control methods working *in practice*.

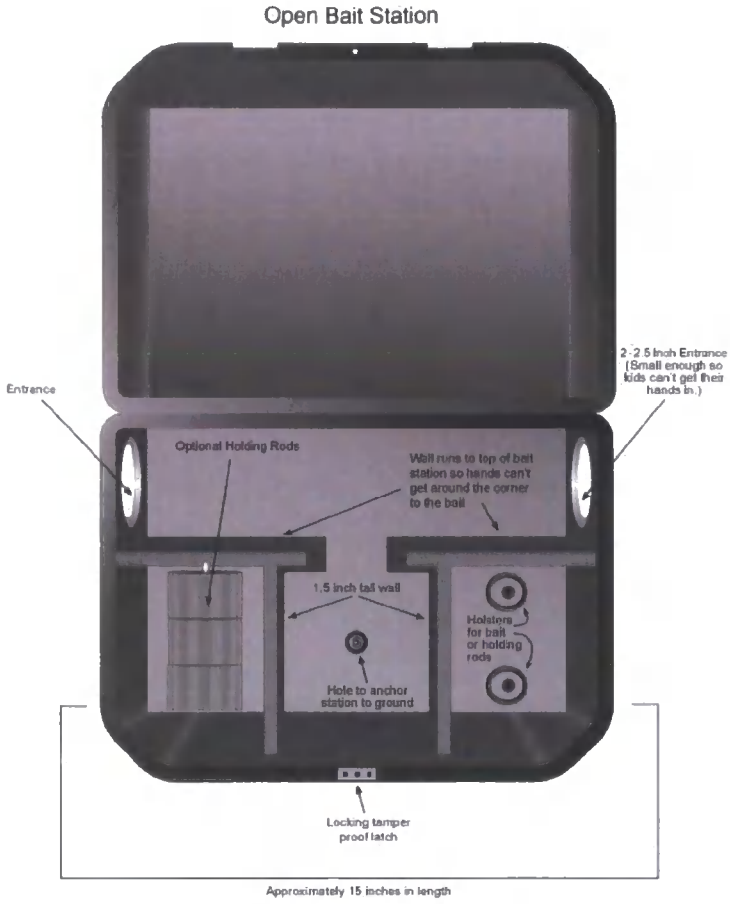


Figure Sixteen. Diagram of an open bait box, aerial view,marking features that constitute bait stations (including double entry points and ports for securing bait and making it tamper proof). Source: www.elkhorn.com

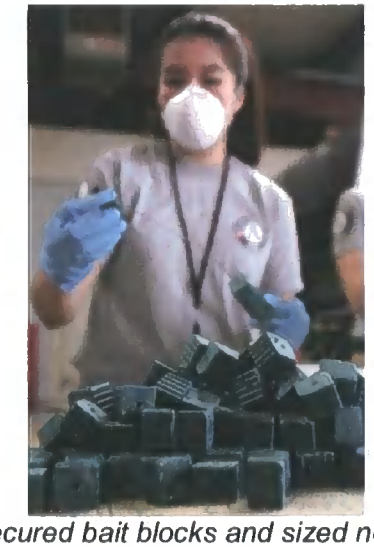


Figure Seventeen. Photo of bait station with secured bait blocks and sized next to a model rat. Source: www.epestsupply.com
Figure Eighteen. Blue EPA-certified bait blocks, in manufacturing. Source: www.ob.org/programs

Constitutive elements of the pest control assemblage

The technician's relation to knowledge –
Modern rat knowledge producers and the performance of professionalism

The destruction of the modern rat is implemented by networks of materials very different to those that were organized to destroy the Victorian rat. This is a period in which the control of rats is performed by a large network of pest control companies, both state and privately owned, integrated with an industry that grew quickly in the 1950's devoted to the production of chemical poisons, rat control technologies and knowledges of the rat (Source: Sorex Limited). These chemical and knowledge producers are extremely vast – Ecolab, the largest rodenticide chemical producer and pest control company has an annual turnover of $5 billion, supplying organizations in 160 countries (Ecolab website). Product catalogues for two other pest control suppliers, Kilgerm Chemicals and Barratine, are translated into nearly 50 languages (Killgerm product catalogue). The size of these organizations performs the *global* character of the modern rat – it is not a threat to a country or territory, but to the total extent of human civilization. The 'hunting ground' of pest control is, in many respects, a space without remainder and this global rat motif permeates narratives discussed in the 'History of the Rat' chapter.

It is this industry that makes what are considered most effective methods of modern rat destruction; it produces the scientific facts of the rat through which certain methods of pest control gain credibility, and others become obsolete. In this assemblage, pest control technicians are neither innovators nor "[their] own master[s]" in Bartley's (1911 pp 61) words. Instead, they are trained by pest control educational bodies (such as the British Pest Control Association) how to investigate any space of the rat for "signs". It is these signs that disclose the truth of the situation; they reveal which of the techniques and equipment produced by the pest control industry will be most effective for the circumstance. Qualifications that guarantee pest control technicians the knowledges that enable

the effective implementation of the industry's methods are therefore instrumental in the assemblage.

Control of the rat here is not based on mastery of rat characters; it is instead guaranteed by the science and products of pest control. Technicians imbedded in this 'merely' carry out the techniques of this specialized body, carrying out the checklist referenced in the introduction of this chapter. The technician is the only subject able to perform pest *control*; no other is responsible for the control of the modern rat. As technicians often said, very few of their clients carry out measures of trapping or killing the animals themselves. The modern rat is strongly disease resonant; it demands the 'naked' human body be spatially separated from the spaces of rats (their bodies, territories and traces). When rats transgress, or when they reterritorialize human spaces, it is pest control's responsibility to separate these spaces and affirm spatial purity. Effective security against the rat requires particular kinds of power-knowledge, inaccessible to those who are positioned merely as 'clients' in the assemblage.

The rat-catchers also exercise power-knowledges in their enactment of rat characteristics, and in the same way these techniques of knowing enable certain means of trapping. What is distinct with pest control strategy is the power of knowledge *creation*: of the new and the cutting-edge. The rat here is something to keep up with; whatever techniques are the best at present do not assure that the rat will be expunged, and therefore the pest control industry is *constantly* generating new ways of killing the rat through new knowledges of its biology. The modern rat is therefore caught through techniques that always carry the possibility of being bettered. This is one of the ways in which the failure of pest control methods is used as a generative component in the assemblage,

The performance of these power-knowledges also relies intensely on a related display of *professionalism*. The 'profession' was important to the rat-catchers: it was a means of demonstrating their mastery by judging the work of others; a self-regulation and autonomy. Professionalism works in a different way in the pest control assemblage, being a means of demonstrating a high level of knowledge and discipline through the predictable selection of traps and poisons.

One technique is the utilization of a particular affectual register in relaying to clients the elements of the process, or "the treatment". A tight, predictable, scientific terminology is used to refer to rat biology, poisons, materials, and techniques, reflecting elements that also become tight, predictable and scientific themselves in their use. Poisons are called "anticoagulant rodenticides", making reference to the bodily action of the chemicals on a species. When a treatment was failing, it was often relayed to clients that "the rodents have had a neophobic response to the treatment. What this means is ..." It was also a frequent occurrence for clients to be given a brief lesson in rodent biology, the technician giving a rat diagnosis much like the professionalism of the doctor. My presence as an unskilled youth in this performance was very visible, and I became extremely conscious of my bodily play. Many pest control businesses were not interested in taking me out for a day, specifically for the reason of keeping professional, and it was important to the ones that did take me that I be adorned with the symbols of pest control, such as a boiler suit, gloves, a signifying badge or a bag of equipment. This was especially intensified during moments in which the process became a spectacle, a frequent happening when particularly troubled clients asked for advice, or when our visibility in certain commercial settings facilitated the taking-place of marked apprehension. Our arrival for a contract call at a hotel accommodating important guests made one hotel owner extremely irate, and I was hidden in the van whilst the treatment was done discreetly.

For similar reasons the vans were always silent about their passengers, being marked as 'Neighbourhood Services', 'Environmental Services' or 'City Council'. Keeping professional was a means by which the particular detrimental resonance of the presence of rats, a presence performed merely by the working of pest control technicians, could be annulled, whilst at the same time enabling a performance that demonstrated the technician's power-knowledge. The use of dogs in this way was ridiculed and met with laughter: the strategies utilized in the use of working animality differ, making them unscientific, unpredictable and a spectacle, and therefore unworkable in the assemblage. One technician in a

very small two-person pest control business 'admitted' to using his dog once in a 'special case' where a mouse was living in the many possessions of a terrified compulsive hoarder. In recounting his story the technician emphasized the unprofessional nature of bringing a dog into a house. It would have been extremely difficult to carry out such a technique for Rentokil or Ecolab, and although the pest control assemblage can enrol such material, most of the work of this assemblage renders dogs null and void

Figure Nineteen. An early professional pest control 'serviceman' and his equipment. Behind all these devices are massive networks of industries, producing means of effecting rat destruction. Vans are no longer display their content in this way. Source: Meehan 1984

Achievement of the state of 'control'

The pest control assemblage relies on the constant production of rat knowledges and techniques, and these knowledges permeate pest eradication practice through the performance of professionalism – a particular relationship of the technician to these knowledges. These knowledges are key to achieve the state of control – a demand quite different to the demands that inaugurated Victorian rat-catching practice.

Modern pest control, like all the different means of rat expurgation, aims to have power over the rat, to organize, manage or kill it, to define the limits of its possibilities and perform its banishment from certain spaces. The uniqueness of the pest control assemblage is that the emergent effect of the execution of means of destruction and management is the achievement of the state of "*control*". Eradication, thought to be the practical removal of rats through killing them, is a key movement in the realization of this objective. By laying chemical rodenticides in 'inside' or protected spaces, the offending transgressive rats are killed, interpreted as a spatial *removal*. A further set of practices, not related to actions of eradication but also key in the achievement of the state of control, are the so-called "preventative pest control methods". These techniques, even more explicitly spatial in their action, involve themselves towards making 'inside' spaces inaccessible or unattractive to rats, through attention to "perimeter areas", "proofing", altering building structure, and advice on "housekeeping" (Cornwell 1973). Both sets of techniques are deemed essential for the achievement of control, but as eradication through the laying of poisons requires rats to enter treated 'inside' spaces, *necessitating* the transgression of rats, preventative techniques are thus secondary, both chronologically and by their relative importance, and carried out after eradication. These elements will be discussed later, but attention is drawn to this double-action of groups of related techniques in pest control, either eradication or prevention, and the way in which emphasis on one of these groups is increased when operated through certain spaces.

This state of control is inaugurated by three distinct sets of actors and related kinds of practices in the pest control assemblage. All pest control practice is gathered into these three types of client: individual call-outs (usually households), contracts (usually commercial buildings), and population control. A call-out job shares many elements with an urban ratting job – it is demanded after the event of a rat transgression, and emphasis is placed on the effective eradication of the offending animals from 'inside' spaces. For most pest control businesses these roughly constitute, in number, the majority of daily jobs (interview source).

The second stimulus for pest control practice is the contract call. These are permanent responsibilities a pest control business has with a party to remotely ensure constant control. These calls may be demanded by parties that have not witnessed rats transgressing *at all*, and instead pest control work becomes an insurance policy against the possibility of rat damage. Parties involved are usually commercial actors with valuable assets that are constantly under threat from the rat, demanding preventative measures. The placing of permanent bait stations plays a significant role in this – here the act of poisoning becomes a preventative measure or form of security, not part of a process of eradication. In this way, the contract call rat is not an invader to be purified. Instead it is a possible invader, featuring as a constant threat to the security of inside spaces. This threat may be increased or decreased (e.g. through 'housekeeping' efforts or the removal of 'harbourage' at the perimeter of buildings) but the rat as virtual possibility continually carries the potential for transgressing. With the contract call, as with much of the figure of the modern rat, "insecurity is the new normal" (Massumi 2005 pp 33). Government acts such as the 1949 Prevention of Damage by Pests Act particularly make demands for the continual performance of the security of protected spaces. Boundaries are never closed, and the transgressive rat that is always immanent potential enacts the character of 'inside' space – as such rats are central to the very existence of the much protected spaces figured through such government acts. Preventative measures like these, that constantly work to perform the security of boundaries, are one of the key advantages of rodenticide poisons in pest control. Ratting with dogs and many other measures cannot achieve this kind of effect, and as such the business demanded by contract calls were a factor leading to the laying of poison becoming central to the assemblage in the 1950's (Meehan 1984).

A third and much rarer stimulus for pest control practice, although a substantive element in both contracts and call-outs is the understanding of pest control as a technique for controlling a population, not just the protection of a space from rats. This occasionally acts as a motivation for a pest control job, an example being a state-hired job to eradicate rats in the sewer, where rats play no

immediate threat or damage and the practice isn't part of the performance of the security of a space. Here pest control is hired in the aim of reducing the overall *population*. The state is keen to kill rats in this way, building pest control measures into the urban fabric, such as turning bins into housing for bait stations (Rentokil website). Despite population control being an infrequent cause for the initiation of practice, the rat-as-population is a key feature of modern pest control practice. The rat here does not constitute a singular body of a rat, nor the rat as species, as a group of bodies that share characteristics, but by the total number of rat bodies. Techniques of pest control are therefore considered practices of biopower and population health, where each eradication job is thought to be altering total numbers of this complete rat entity. Population control of this kind not only unites the object of control into a singular body, but also unites the agents of pest control around this cause. The pest control industry is centralized or united in particular moments in this way, through a variety of publications as well as a bulletin service sent to all pest control business. With the same movement that these publications unite 'the pest control industry', the 'rat population' is also figured. These texts frequently press efforts to unite all pest control actors through a common and centralised vocabulary and set of knowledges around this common enemy, to create singular bodies (Cornwell 1973). One technician joked at the amount of paper he receives weekly from pest control, as leaflets, magazine, and bulletins, dedicated to unite otherwise competing actors.

Population management is considered to be a primary way of achieving control, as a decrease in the rat population is thought to decrease the overall numbers of transgressions. The completion of the annual survey on rat numbers particularly does the business of forging this link: here the size of the rat population, as a number of rats, is estimated solely on the number of call-outs received throughout the year. The link here is clear: the more transgressions, the larger the size of the population. Every level of the compiling of data like this requires the single pest control body (to allow for an estimation of the number of call-outs received) that unites around a single pest population. Population

control is quite unlike the calls to eradicate the rat species at the turn of the 19th century (see Hogarth 1929); it is instead a reduction within limits, another way in which the impossibility of eradicating the rat species works in the pest control assemblage.

The rat as population, as a direct result of being a constant source of potential transgression, has a geographical *location*. When the rat enters an 'inside' space it leaves the population, or the potential, becoming actualized. It comes from an 'outside', a place that generates a constant threat, a place that isn't part of the rat-protected space. In different moments this can include urban green spaces, earth, gardens, in harbourage (such as piles of waste, vegetation matter, or piles of machinery or disposed wood). Notice in this way, that wood in use, such as at a manufacturing plant, would not be part of this 'outside'; the wood must be rubbish to be 'outside' and an origin of the rat population. The 'outside' and the origin are therefore forged through practices that regulate the discrete spaces of nature and culture. The rat that makes a warren in an 'outside' space is therefore potential (potential damage); the rat that makes a warren 'inside' is acting a transgression, constituting a "deep infestation" that must be eradicated. Regularly, as noted above, this outside is the sewer, acting out the space of the sewer utilized in the Victorian period as the originary place of the rat. Likewise many of the population control treatments are conducted in the sewers, considering this space the primary *location* for altering the health of the population.

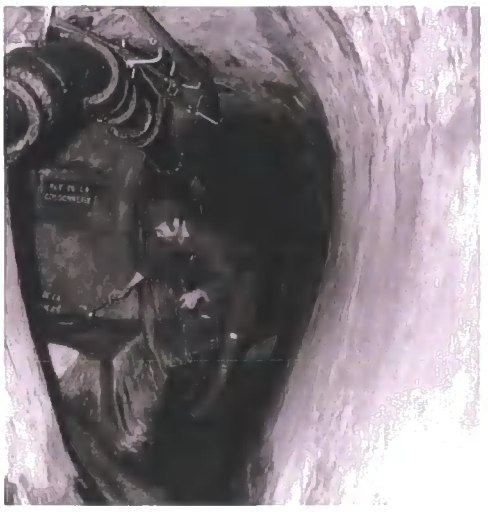


Figure Twenty. A pest control technician applying poison in the sewer. Treatments done here are, unlike 'surface' treatments, initiated simply for the control of a singular rat population. Source: www.sewerhistory.org/images/w/wef/wefb/wefb10

Knowing the rat

Pest control practice is based on knowledges of two interrelated areas: the action of chemical rodenticides and the nature of rat biology. Rodenticides are thought to act on and call into being this rat biology, and likewise rat biology must be understood to enable different techniques that ensure the rodenticides are consumed by the rat body.

As addressed above, rodenticide poisons require the rat that transgresses – they are placed in 'inside' spaces, so need to *enact* the movement of rats to these inside spaces for them to consume the poisoned baits. This inside placing allows the pest control technician to carry out many treatments, remotely, with little need to work in abject spaces. The poison does the work by reading rat biology; rats may operate at night, but it is the bait that exploits this by working at night, with the technician's body unnecessary at the event of bait uptake. This has increased the economy of rat destruction, through both the efficiency of one worker and the number of pest control businesses – a company of eight people

can purify 2000 properties, creating a highly competitive industry. Ike Matthews in the 19th Century noted the "lack of competition" in rat-catching (1898 pp 49); this certainly does not describe the state of pest control (interview source).

The pest control assemblage came together with the application of anticoagulant poisons to unwanted mammals, and these chemicals continue to be an essential component in the character of the pest control assemblage and their emergent effects (Meehan 1984). Anticoagulants work by inhibiting the production of the enzyme prothrombin; this produces the insoluble substance fibrin which enables blood clotting. Without it, mammals with circulatory systems bleed to death through internal and external haemorrhages (CSL 2005). The lacing of different baits with these "acute" (fast acting) poisons formed early pest control practice. Nonetheless, these acute fast acting baits suffered the defect of causing "bait shyness" – if a sub-lethal dose was consumed, rats would quickly learn to avoid such baits in the future (Humphries et al 2000). Furthermore, there was alarm at the risk these potent poisons posed to other mammals: humans, children, companion animals and wildlife. Many of these chemicals were subject to stringent regulation and many bans. Therefore growing chemicals industry produced a "second generation" of anticoagulants (Meehan 1984). These were called "chronic" poisons, with lower toxicities that relied on repeated intake.

In this early but notable shift in the components of the assemblage we see two major features that reoccur in the development of rodenticide poisons: first, the way in which they have changed in order to better read rat biology (here the 'tendency' of rats to become bait shy if incorrectly poisoned); second, the effort to exclude non-target bodies from the process of poisoning, bodies that also have characteristics of the targeted rat biology that also come into being through poisoning. These "non-target species" are an object of significant attention in pest control practice, sometimes producing more emergent effects than that of rat biology; the deployment of rodenticides is therefore as much about preventing other bodies from consuming the poisons and making sure they *become*

*rodent*icides. Differentiation between target and non-target bodies is performed in a variety of other ways that will be investigated later.

The knowledge of biology, as has arisen prominently already in this chapter, is an extremely important component of the pest control assemblage. Knowledge produced about rat biology is produced to effect different means of rat destruction, and therefore the rat-as-biology in pest control is ultimately the *rat-as-taker-of-bait*. The majority of efforts to understand rat biology are orientated around producing more effective means of getting rats to consume bait, and in this way the modern rat is the rat that *eats*. Like the rats that rat-catchers caught, ontological claims about the rats that pest control do not lie 'outside' the process of its destruction; changes in rat ontology arise from changes in the rat assemblage, and this chapter now turns towards rat ontology in the pest control assemblage.

The entity 'rat biology', like the 'habits' of the ratting rats, is a universal a priori component of being-rat that has a non-situational existence. However, unlike the differentiation of rat habits into different spatially organised rats, the pest control rat is united by its species – its biology. This biology is something contained *within* the rat, held like genetic information, that gains expression in particular moments. The idea that rat doings originate 'within' its body is not just a commitment to a Cartesian bodily logic, but reflects the importance of the 'inside' as a key space for the working of pest control methods, namely the working of rodenticide poisons within the body. The rat is thought to possess an inside that reacts to different chemicals in predictable ways, so the knowledge of this inside, of how different poisons may work to best kill the rat, the knowledge gained from cutting open the rat and seeing the inside in a laboratory setting, is thought to be a key site for effecting productive methods of eradication. Other elements like rat 'behaviour' also follow this logic, being outward expressions of inward elements or dispositions.

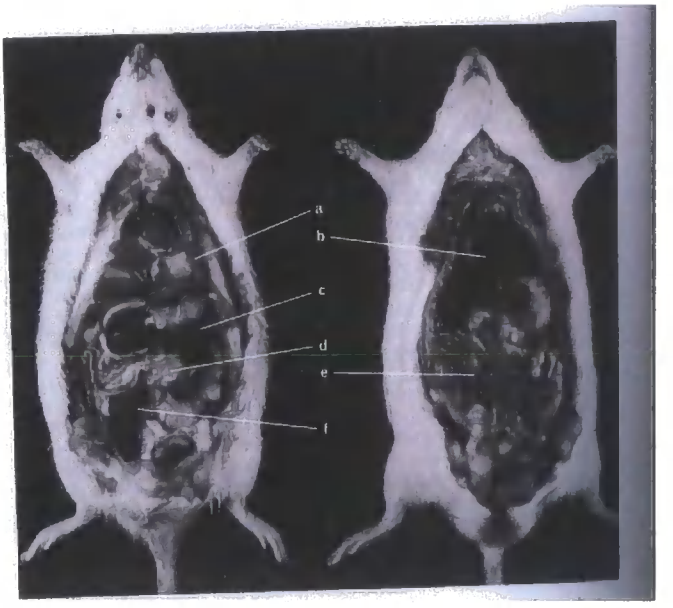


Figure Twenty-One. The logic of the 'inside'. The post mortem condition of albino rat with anticoagulant poisoning. The letters correspond to different 'signs' in the rat body of the working of poisons, including haemorrhages and a pale liver. Source: Meehan 1984.

Several constituents are commonly elucidated as key components of rat biology, and these therefore form key constitutive elements of the poisoned rat in that they are all parts of rat biology that enact or hamper the becoming-rat as taker-of-bait. These components of biology effect different methods in the assemblage, especially the way in which they can be made predictable to assure the success of techniques of control. Key sites are the ways in which rat biology tends rats towards certain predictable ways of entering the spaces of the treatment, or the pursuit of key goals, such as a breeding site, harbourage, food and water, and how these may be exploited in processes of poisoning (HSE misc 515).

The most significant element of rat biology is rat "*neophobia*". The rat in pest control literature "exhibits" a shyness, an unease, around new or strange objects, objects that the rat has not yet territorialized into its already territorialized or familiarised space. Neophobia works much like the rat-catchers 'cunning' in that they are both elements of the rat body that regularly make them escape

attempts to kill them. Instead of 'outwitting' the cunning rat, neophobia instead demands *familiarizing* the rat with the technologies of its destruction. In this way, a great attentiveness is placed on keeping bait stations in the same place throughout a treatment, or towards extending the length of a treatment and weakening the strength of the poisons making the rat become confident feeding at the bait stations ensuring the consumption of a lethal dose. Bait stations themselves have neophobia built into their design such that they respond to spatial organisations that may cause anxiety (such as a box with only one clear entry and exit point). Bait boxes are therefore designed to reassure the rat in response to neophobia, by increasing the ease of entry and exit, quickening the period the rat will take to territorialise the bait box.

By going 'inside' the rat, a range of elements are revealed that anthropomorphism would fail to capture. For example, the rat doesn't 'see' – objects that are simply seen do not present themselves as stimuli for the pest control rat, so methods that rely on their being seen are useless. Instead the rat feels, smells and hears, in this order, having a hierarchy of mechanisms for navigation (Meehan 1984). This is a difficult becoming-rat for the pest control technician in practice, for it diminishes of the prime seat of human sensibility. Instead technicians are required to attend to the multi-sensate worlds of the rat. Methods that effectively grapple with this, such as the trap that is made in its becoming-felt are thought to be superior. Bait stations therefore feature passageways just wide enough to permit entry, and are designed inside to guide the 'rat that feels' to the bait. Poisons themselves are added to materials that are strongly scented as smell has a much more important role in the palatability of the poison than taste or sight. In fact, an appreciation of this led to the adoption and use of Bittrex in rodenticides. This bittering agent becomes repugnant when consumed by a human mouth, but becomes imperceptible when it enters the mouth of the rat. This discrepancy between sensible affects is another way of performing the difference between target and non-target animals. Scents such as vanilla are also considered hugely beneficial in this respect, produced from

the rat that more readily eats vanilla in the pages of laboratory data (Meehan 1984).

These rodenticides and other 'innovations', whose development are tied to analysis of biology, create more circulating references of the rat. They never get closer or become more faithful to 'the rat', but enable new becomings that can be used for rat destruction. In this way elements of rat ontology or biology are stimulated by different means of eradication, and through performances of this biology the pest control assemblage is made durable. Rodenticide use is always acting and performing rat ontology in different ways.

In this way, chemical producers in the pest control assemblage devote a considerable amount of effort to studies of modes of rat communication, breeding cycles, scent stimulus behaviour, along with a wide range of other affectual capacities that could be initiated for the process of achieving rat control. Rentokil laboratories for example have a range of 'replica environments' (makeshift warrens, the interior and exterior of different building types, replica 'inside' spaces) in which rats are subject to different scents, temperatures, interfering sonar, ultrasonic and electromagnetic devices, forced jumping and biological methods of control such as viruses (Meehan 1984). This, along with statistical analyses of rat behaviours in response to these stimuli, is thought to provide knowledges that might achieve more effective methods of control. One of the main areas pursued in these replica environments is the role of rat communication, a component that could be built into devices that could securely achieve constant control (Pest control news issue 66).

Figure Twenty-Two. One of Rentokil's outdoor pens - replica environments for the testing of different techniques.

A further key way in which rat ontology is performed is the way in which the techniques of rat destruction with rodenticides enable a separation of the rat body (including its traces) from the human body. Disease in pest control is an extremely powerful force, and a contemporary one – references to rat bodies in this way only began at the start of the 20th century, and the most iconic 'rat' disease of all, the bubonic plague, was only linked to the rat in 1898 (Burt 2006). The modern rat is a thoroughly diseased body, and this disease works powerfully through bodily and geographical techniques. It not only stimulates horror and aversion to rat bodies, but disease is also is performed through techniques of distancing – indeed it seems that the further the distance carved from rats the greater the affective power of disease becomes. Science here creates *both* the techniques that enable a distancing (through rodenticide poisons), and also the creation of a diseased rat body that deems it necessary to make such a distance. It is across this performed separation, across the divide that protects certain bodies from the disease of the rat, that the threat of disease is carried, a distance made between property-owners body, pet body, child body, livestock body, and

most importantly the body of the technician. This distance is the space through which the virus works, as diagram on the pages of countless pest control publications; virus *becomes* in the movement across this space. Disease is supposedly not a risk to the rat – a distance cannot be performed by the rat between itself - and in this way the rat is played out as a doubly transgressive body that habituates diseased spaces but doesn't succumb to such diseases itself. Rats in many ways *are* disease, to the point where spillages of food from bird tables is a "hygiene issue" (pest control news issue 73 pp16) – here rat, virus, trace, the role of the food source in the creation of a rat territory, in their coming together enable the force of disease as it moves through the moral spacing of separation. This diseased space of the in-between is not overcome by removing the space; for the clean and healthy body to have existence it must make this space. This is done through a range of techniques: rodenticide poisons for example mean that technicians themselves do not have to handle rat bodies. Touching, of rat bodies and traces including territories, marks and faeces, is also avoided or prevented; this may be done through the wearing of gloves – notice that the distance may only be the width of a millimetre, but this enables the hugely important distinction between naked touching and effective separation.

In all these ways, rodenticide poisons in the pest control assemblage are considered greatly superior to other techniques for their effective readings of rat biology or ontology. Unlike the breakback trap for example, that only catches a single rat then initiates the taking-place of the neophobic response, the bait box combats and quells neophobia through enabling effective rat territorialisation – "familiarization" – and by avoiding methods of trapping. This also means that the technician needn't ever see or touch rat bodies, alive or dead. The unseen rat feeds on the poison and dies in the warren, the warren that is now on the 'outside' of protected spaces in the pest control assemblage. The entire 'infestation' – the singular threat and target – gets to feed because of the slow-acting nature of the poisons, and in this way, when carried out effectively, the entire infestation is destroyed.

The pest control 'treatment' – the bait box in practice

In examining the elements of the pest control assemblage, the chapter now turns towards the deploying of rodenticides *in practice*. This practice not only effects different humans and rats, but also effects different becoming-rats that imbricate both human and rat. This section of the chapter will therefore run through a typical "treatment" – the decisions made at each stage. In doing so, a range of other components of the pest control assemblage, of knowledges, techniques, day-to-day means of doing the business of rat control will come into view, along with a range of techniques for diagramming the rat, of reading its 'writing' – all these are essential for the working of bait boxes in practice.

Pest control practice centres on the event of the 'treatment', which as elucidated earlier involves an initial survey and repeat visits, carried out until signs of rats disappear. Treatments may be 'contract' or a 'call-out', and the latter may be considered an 'emergency' (constituted by call-outs in which the client is unable to safely perform the distance between human and rat body, so are attended to within 24 hours – many larger businesses have a tracking system for each technician to alert them to such emergencies), but these different treatments are carried out using the same procedures. Even in an emergency, as a technician explained, "more often than not we don't see rats" (interview source) – such a seeing works against the performance of the pest control assemblage, bringing risk of disease, and instead are events to be fiercely avoided. Treatments can and are done for nearly any kind of property and built space, and these may be spread across a wide geography. Most technicians cover an area of around 3000 square miles, and in this respect the importance of the unmarked van is paramount for mobility and the pursuit of work in the competitive economy of rat destruction.

The Survey – Finding Signs

All treatments begin with the survey, the primary and investigative stage of pest control practice. In this introductory hour, the technician aims to uncover the type, extent and location of the 'infestation' by finding and identifying the traces that constitute it (infestation here simply refers to the transgressive movement of singular or multiple rats across an 'inside' space). The survey also aims to locate both used and possible 'entry points' through which rats enter buildings, the presence of any non-target species, and food and water sources for the rats. In effect, surveys aim to find where activity has taken place, an indication of where activity may take place again. All this information together decides the most suitable rodenticide and bait box to use, and an appropriate way of positioning of them. The survey, in gathering this information and uncovering the locations where rats have and can continue to gain entry, privileges (in practice) a role for client feedback (like an interview or a *confession*). Domestic clients here often emphasize the horror of the infestation ("the rat was really huge"; "they're everywhere"), but also the blamelessness of their character ("we're really clean"). Here we find an understanding of a rat infestation as a sign of a faulty domesticity, a charge which clients, without invitation, are anxious to rebuke.

One technician also explained that a role of the survey and client feedback is to also find if there has been any rodent activity at all. He gave many stories of clients whose fear of infestation had led them to believe they had seen or heard rats, and others who had used the resonance of the event of the sighting of rats as a stimulus for allowing the council to move them into different housing – here a sign of rats generates such an intensity that it renders certain spaces uninhabitable, and this power does not go unnoticed by many clients. Finding signs is therefore important to establish if rats have transgressed at all.

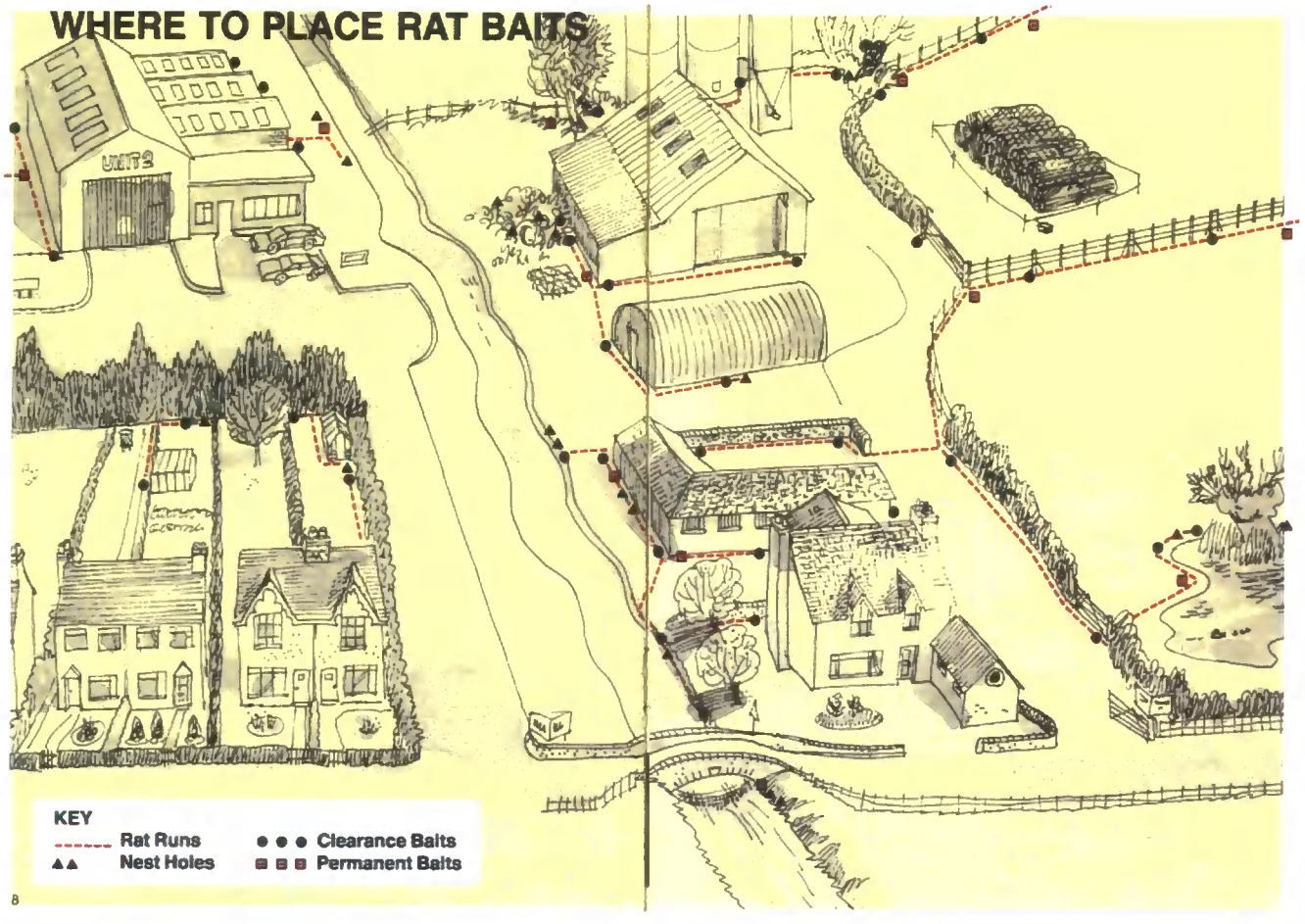
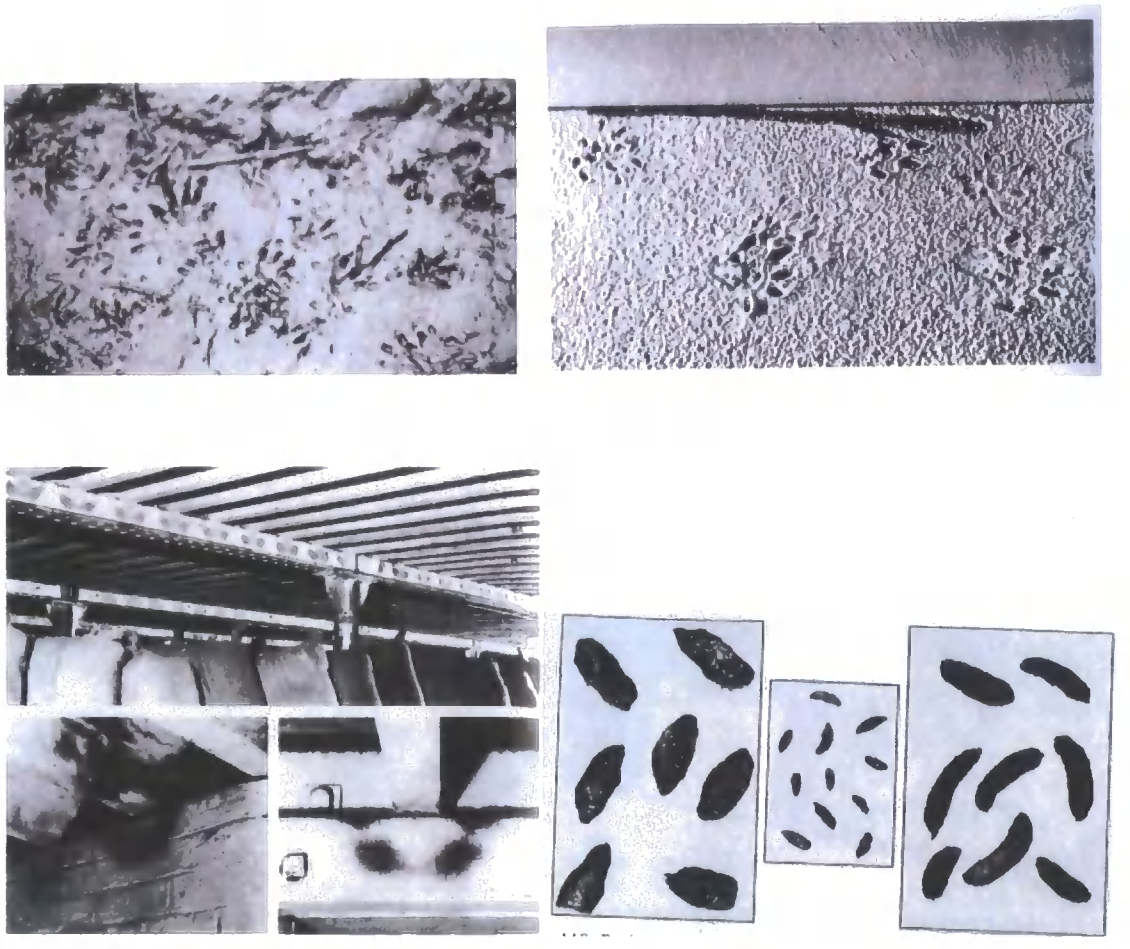


Figure Twenty-Three. Diagramming rat movement in 'outside' space. Here anticipated lines of rat movement through commercial and domestic 'outside' spaces are figured, along with likely sites for rat warrens. Notice how the positioning of bait stations marks the boundaries of these domestic and commercial spaces. Unlike Victorian rat-catching, pest control techniques do not enter warrens. Source: "Rat and mouse control", Sorex Limited.

The pest control technician must uncover used and possible entry points, and like their function in the Victorian assemblage, these points aid the performance of an inside and outside logic – entry points are orientated *towards* an inside space and facilitate the passing of things from the outside, never vice versa. In this way, rats 'come into' (indeed, *enter*) such inside spaces, marked diagrammatically in the pages of pest control literature by the arrow that points towards the interior, the arrow that denotes the movement of the rat, the arrow that pursues harbourage, warmth and "the spoils". The inside is a priori and by default a place without rats, which the rats therefore must invade. Like in Victorian rat-catching, entry points are constituted by "gaps in the fabric of buildings" (Mathews 1898), or holes. In places where the boundary of the inside and outside is porous or extremely uncertain (e.g. in scrap yards or open manufacturing plants) entry points cease to be located along building walls and become entry points to the *site*, resolving the uncertainty of the location of the boundaries. On the outside of buildings entry points include drainage defects, broken pipes, defective chamber covers, and stoppers missing from rodding eye or surface water gullies; on the inside entry points include wall breaks, holes around the pipe work of sinks and baths, and gaps under doors. Separating possible entry points from inaccessible or unusable breaks in building fabrics involves both the awareness and performance of the possibilities and limits of rat biology – rats may scale pipes (holes here are therefore entry points) but not wall faces (so gaps here cannot become entry points). These are non-human spaces in the making – they have little existence to various *other* human and animal subjectivities, and require virtual rat potential to bring them into being. To the rat, these often unnoticed points are essential for the making of harbourage or for finding food in buildings, and they therefore also become essential to the pest control technician. In this way the making of these entry points are a shared becoming-rat that implicate both rat and human.



'Rat writing'. Fig twenty-four and twenty-five: rat footprints and tail marks in mud and tracking dust (the latter showing footprints at a floor-wall join). Fig twenty-six: the grease marks under roof beams characteristic of Rattus Rattus (the black rat). Fig twenty-seven: showing brown rat, house mouse and black rat droppings (actual size). This writing is used to perform the differentiation of non-target, and between different target, species. Source: Meehan 1984

The survey is also directed to traces, the rat "writing" (a term used by Hinchliffe et al, 2005, to "unsettle the sense that nonhumans are always merely written up" pp 649) that is made by rats in their passage through a space. These

disclose the site and the species involved, demanding what bait and poison to use, and providing territories for the laying of bait stations. The most important site for the writing of rats is the territory at wall-floor joins, these areas being channels for rat movement as they 'feel' their way around a space using their whiskers. Rats and mice are killed with the same poisons, but 'take' bait in markedly different ways, leaving different writing. Rats tend to eat at one site and prefer cereals, whereas mice are erratic feeders; the type of the damage done at a survey site aids the differentiation of species, with rat damage involving the taking of large amounts of food, and mouse damage being characterized by distinctive fraying of cardboard and half-eaten foodstuffs. Their droppings are also differentiated (the technician must be able to discriminate between both their droppings, but also between seeds and dirt that can appear like faeces), along with footprints left in dust, the nature of any nesting, the size of any holes made, the location of 'grease marks' that are made by rats in the rubbing of their fur against a surface, client observations, and sometimes even the smell (interview source). An ability to discern old and new droppings can also tell the technician if the writing is a recent rat space or an older abandoned one. There are a variety of techniques to make perceptible different rat and mouse writing: a UV light can be used to uncover sites of rat urine (Rentokil product catalogue 2006), torches can be angled low to reveal unseen footprints in dust, or tracking dust can be laid by the technician to make a space for rat writing.

The survey is also used to discover rat food sources, and the presence of any non-target species. Food sources are protected or removed to make the bait the sole foodstuff for the rat and to increase the chance of bait 'take'. The presence of other animals or vulnerable people, such as different pets, children, or livestock animals is also a major axis of attention, and used as a basis for deciding which method of laying bait will be used to ensure a safe discrimination between target and non-target species.

Initial Treatment – Deploying the Bait

From the different writing read by the technician coupled with a range of situational contingencies, the most suitable method of baiting for the situation is *discovered.* There is a wide range of baits available, including meals, cut or whole grains, pellets, seeds, wax blocks, edible lards and gels, liquid baits and contact dusts. All of these involve anticoagulant rodenticides that require consumption and act on the body in the same way, but different formulations are used depending on the species targeted, the environment and the existence of non-target species. To differentiate between target species, either seeds are selected for mice, or all kinds of grains for rats. To distinguish between non-target species, wax blocks may be used, secured to the inside of a bait box where they cannot be spilled and 'accidentally' consumed, or gels can be stuck where rats have gained access to a high place, inaccessible to the non-target species involved. Liquid baits are used where rats are thought to have little access to water, and contact dusts are applied to territories of rat movement when there is a large food supply and it is unlikely that a sufficient amount of bait will be consumed. Dusts enact the action of the grooming rat, an activity of great importance to the rat, uncovered through laboratory setting. One study noted that rats may spend up to 20% of their waking time with this activity (Ecolab 2005). Dusts that get into rat fur are then consumed through this grooming. Some other baits are also inaccessible or imperceptible to other species, only *becoming* baits when enacted by certain kinds of bodies. Pest control aims to ensure that baits only become so for the target animal, and the different methods of species differentiation is a means of doing this.

Figure Twenty-Eight: Brown rat grooming. Source: www.viriato.net

If any non-target species are considered to be safely accounted for, and the treatment is an emergency or a deep infestation (in those uncommon circumstances where a warren has been made in an 'inside' space) then acute or fast-acting rodenticides are used to speed up the process of destruction. As mentioned above, use of these acute poisons nonetheless carry risks and drawbacks. Given the speed at which they act, rats are not given time to familiarize with the bait stations, thus there is a greater chance of a rat becoming half-poisoned, and if it manages to recover it is likely to become intensely neophobic and harder to trap. Acute poison treatments in this way are unlikely to successfully expunge the entire infestation. Furthermore acute poisons, given their high concentrations, have more stringent controls on their use. All use of anticoagulants carry restrictions, and a large part of pest control practice involves filling in Coshh (Control of Substances Hazardous to Health) assessments, stating how each rodenticide has been deployed conservatively and identifying the possible "exposure routes", or the ways in which "the substance may enter

the [non-target] body" (Ecolab Coshh assessment). Acute poisons carry even further regulations, and are "not allowed for use outdoors" (BPCA 2006). Here we find inside-outside logics at work again, with strong poisons becoming more dangerous and indeterminate when placed outside the walls of a building. In cases like the manufacturing plant where the boundaries of the inside-outside are difficult to determine, the laying of acute poisons helps to *make* these boundaries clear. The technician here chose to place these poisons in spaces of non-work (storerooms, locker rooms, places to eat, corridors and bench areas outside), making spaces of work (including warehouses with semi-open peripheries) 'outdoors'. The laying of acute poisons in this way works to profoundly perform the inside-outside, not just simply reflecting it.

Baits, as addressed earlier, are designed for their palatability and their effective attraction of 'the rat', its biology, in a once and for all complete originary one-to-one relation with its essence. Nonetheless, this was complicated in practice by the hesitant use of *supplements* by pest control technicians. No longer innovators (it is not their place to find the best kind of bait), many technicians nonetheless sought to alter their bait formulations (bait stations were not subject to alteration for issues of safety). A range of substances were used, including corn oil, sugar, peanut butter, chocolate, or peanut chocolate. Here we find the logic of supplementation as examined by Derrida (1981), the inessential addition to something already complete, at work in day-to-day pest control practice. The bait already knows the rat, but supplementation was nonetheless thought to increase the likelihood of killing, following the same logic as the poison in faithfully allying with biology. One technician decided that this supplementation and in fact all efforts for palatability was all futile and pointless anyway "because after all they'll eat faeces won't they, so they can't be that picky." Here the rat as a transgressive creature works its way even into its palate, questioning efforts that perform a rat palate that is anything but dirty and indiscriminate.

Baits are nearly always placed in bait stations, existing to protect bait from spillage and the threat of non-target species, to act as a container for clear rat writing, and to provide a space for noting and recording. Ideally for the baiting of rats, baits would be placed uncovered, but even in rare areas thought to be sufficiently protected poisons are laid in small plastic bait trays. Through these methods, bait is always subject to striating forces so that disturbances can be made easily perceptible, for example the way in which a uniform levelled amount of bait in a bait tray is clearly indented when a rat takes bait, or chewed and unsettled by a mouse. These interruptions in the ordering of baits are then marked by the technician on the bait stations itself on a contract call, as proof that there has been a regular check for rodent writing. As well as being a space for recording and striating, bait boxes also perform non-target species differentiation, discriminating on the size of the non-target animal through the rat-sized holes of the bait box, their means of feeding, or by securing bait boxes from non-target disturbances; bait boxes may be made from more expensive "tamper-resistant" materials such as steel, or they can be bolted to a surface if the non-target species is thought to be able to move the bait box (such as a large dog). Bait boxes are nearly always used when in outside spaces, and in this way act as a means of performing this space.

Figure Twenty-Nine. The placing of baits stations along floor-wall joins, performing the lines of neophobic rat movement. Source: Own photo.

The placing of baits (e.g. high, low, under) also acts as a means of performing the target and non-target difference. But most importantly for an effective treatment, bait stations must be located in recognized active territories of rat movement. These territories, as highlighted before, are usually the spaces at floor-wall joins in the periphery of rooms and buildings, diagrammed as zones, flows and lines, never points, figuring the neophobic rat that hugs walls for reassurance and guidance, rarely straying into the centre of rooms. Bait stations are placed to interrupt these secure territories, and in this way ensure being found by rats but also initiate a neophobic response through the nature of their interruption; this is overcome by allowing for a period of familiarization highlighted before. Places where recent rat writing and marks have been found become primary target sites for treatment, reducing the need for placing large amounts of poison in many locations. Often these sites are near entry points, which are left open to allow for rat entry. Once these areas have been chosen, it is then that the placing within these rat territories performs non-target species differentiation.

Bait stations may be "hidden" from the non-target species, such as being made imperceptible or inaccessible; thin mouse stations can be placed behind kickboards if this has been a site of mouse activity. Furthermore, where the presence of practices to remove rats work to make rats themselves present such as in professional spaces, there are a variety of designs that hide the bait station's purpose, including types that look like rocks in rockeries, manhole covers, or ventilation boxes. In practice, especially in kitchens, bait boxes were placed underneath cabinets and desks, again demonstrating that the non-target's relation to the practices of baiting is frequently a major axis of attention.

The Return Visit - Monitoring

Once the initial visit has been carried out, pest control practice requires many more visits to assure the state of control. The "return visit" is a period where signs of rodent activity are noted, and the treatment is changed, continued or abated depending on the signs presented. In effect, the rat as it transgresses is monitored, not just by human agents but also through the expressive power of the pest control technologies. Return visits done for contract calls are normally spaced between six to eight times a year to coincide with the breeding cycle of every six weeks; pest control practice therefore aims to disrupt the taking-place of the breeding cycle. The first return visit for a property is usually completed much sooner however, to ensure control in the first stages of an infestation.

Signs read by the technician include, predominantly, the location and nature of the "take" of bait. This is evidenced by spillages, indents in bait supplies, teeth marks on blocks, and if it is mouse writing, half-nibbled grains. The ability to read these different writings of mice and rats is important for the treatment will have to change if the species has been incorrectly identified; rat and mouse cohabitation may require that the treatment simply account for this new species, not change entirely. Where bait has been taken it is re-stocked, noted, and in some instances another bait box may be placed. In practice a

large spatial memory is required. On one site, a farm, the technician was able to find all the bait stations he had deployed on the site months ago, sometimes in very inaccessible or hidden places without notes, doing the same for hundreds of sites every year. The technician explained that once one gets to know the territories of rat movement, the placing of bait stations is extremely processual, to the point where an entirely different technician could complete the return visit, given adequate time. Bait trays are refilled with the same bait (the bait is not changed if the treatment is being successful), and signs of tampering are noted; other animals that may have territorialised the bait stations are removed (such as snails).

When a treatment is effective then these signs decrease. Ever present in this happening is the unseen but acknowledged event of the death of the rats. Here the consumed rodenticides do their equally unseen and slow work, and the rats cease to be able to do the work of infesting and transgressing. Although the act of removing carcasses gets played out as a component of the repeat visit, this highly affective event very rarely plays a part. The pest control rat makes, or is at least thought to make, a space for its death outside the 'inside' spaces, in their warrens or places near water. In this way the bloody act of ratting and trapping is held in contrast with the clean deaths on the 'outside' that characterise pest control, initiated in fact by a an especially bloody (mis)working of blood fibrin and processes of clotting. "More often than not we don't see rats" said one technician "but we more often see them dead than alive". Another technician estimated that his company of eight people deals with sixty dead rats in a year, but that they kill anything from hundreds to tens of thousands in that period (Interview source). This is very different to the Victorian rat-catchers who knew exactly how many rats they had killed or maimed, having the bodies to prove and assure their mastery. Pest control instead use an *absence* of rat signs as their proof.

Conclusion

This chapter has sought to demonstrate how different components of the modern pest control assemblage enact the means of rat destruction through the bait box. The first part emphasised the role of rodenticide poison and rat knowledge producers, performed by the pest control technician through the display of professionalism. The second then examined the various constitutions of different rats and humans that are constituted by the pest control assemblage *in practice*. Through this we see a wide range of humans becoming-rat, human-rat territories, and the role of rat writing – enacted and being enacted through the bait box: rat writing for example becomes a key component for directing the placing of the bait box.

Unlike the Victorian assemblage, humans, rats and other materials are arranged and constituted rather differently. Here, the rat is a biological entity that can be intersected with by chemical or by virus, and likewise the rat performs a threat on this biological level through the hugely resonant figure of 'disease' – absent from the Victorian rat, instead being an assemblage of 'characters'. Two key rat expressions are demanded and used in different ways in the assemblage – first the character of rat 'cunning' that outwits methods of capture and demands counter-cunning, and second the biological expression of 'neophobia', built into the bait box through means of familiarisation and reassurance. In both instances, the different traps and bait boxes perform the differentiation between target and non-target animal, differences built into the traps themselves and through their expression as traps.

They are also, crucially, instrumental in the performance of space, from the expulsion action of the wild pest, to the cleansing action of the urban rat-as-vermin, to the modern rat that can perform inside/outside spatial logics without leaving any trace or ever transgressing.

Conclusions – Closing remarks

Human-rat co-constitution, through different historical-spatial settings, has been extensive, multiple and common, covering a wide number of assemblages, an even larger range of materials, and engages with a great deal of the labour of culture. The rat affect is so circulated that rats in many forms are able to have influence on nearly all aspects of human life (Burt 2006). They are astonishingly hated. With even traces expunged, bodies negated and even with whole species sought to be eradicated, the rat has been subjected to hugely laborious processes of removal and security – processes that call up a range of life-annulling assemblages, dollars seen in only the largest of markets, and without hyperbole, means of rat eradication that are now features of nearly every public space in the western world. Rats epitomise both the changes in human-animal relations and the changing nature of human cultural spaces, especially cities and home spaces, being emblematic and key in the performance of animal-free space in the contemporary setting (Philo 1995).

Nonetheless geography so far, even in growing studies of 'urban wilds' (Hinchliffe, Kearnes, Degen, and Whatmore 2005), has ignored the complex and rich histories, spaces and politics of vermin. Furthermore, through animal geographies' focus on the discursive constitutions of animals, geography has not attended to the multiplicity of forms of animal sensibility, emergent corporeal capacities, and particular expressive powers.

This masters has attempted an assemblage study of configurations of different rats and humans in order to explore a social study of these forms of expression, a concept experiencing growing use in contemporary human geography. Through the conception of assemblage, this masters has sought to animate a non-essentialist notion of the rat in the politics of vermin, instead

attending to the multiple ways in which rats become and are made to become in human-rat assemblages. In this way, this project has hoped to avoid notions of 'the rat' in favour of a more promiscuous understanding of the ways in which rats have been brought into the open.

In illustrating the labour and invested and emergent practices of the rat-as-vermin, this masters has hoped to demonstrate not only how different rats have been constituted through various means of capture and eradication, but also to make a genealogical move in asking: what makes rat-as-vermin *necessary*?. The rat, as a corporeal multiplicity doing the business of the social, as an affect, as threat, virtual potential, has been and remains an essential component, both constitutive and expressive, of a number of human-rat assemblages.

In studying the use of different trapping techniques in practice, this masters has hoped to entertain an understanding of both intimate and violent engagements of human-animal. Likewise, this project also hoped to explore some possible means of de-centring anthropomorphism. In so doing it has uncovered multiple becomings-human and becomings-animal through the alignment of different techniques to a wide range of processes, including the capture, trapping, killing, expurgation, purification, cleansing, returning, banishing, expulsion, or control of different rats.

This masters has illuminated some key pivotal shifts in the constitution of rats and shifts in assemblages, from Victorian rat-catching, to urban rat-catching, and concluding with contemporary pest control. Through these focuses, this project has charted the changing configuration of rats as a 'wild pest' originating and being returned to an external nature, to the modern constitution of the rat as an animal deriving from within the cultural, within urban space, and sometimes from even within the human. With this new alignment the rat has been '*forgotten*' as having an existence outside of cultural spaces, extremely unusual for the position of an animal, and an essential ontological component of the modern rat. Such a constitution has demanded and relied upon the performance of acts of cleansing certain spaces of the traces of rats.

These different human-rat assemblages have displayed a deep interest in the styles of life of different rats, calling into the open various capacities (such as for taste and movement) for the production of the event of trapping. Even transgression (the focus of some animal geographies as the basis for an ethical move, emphasising the ways in which animals may disrupt human orderings: Wolch, Emel and Wilbert 2003) may be demanded as part of the process of trapping. Here this masters refers to the act of 'bolting' from ferrets and the *requirement* of the transgression of rats in the working of bait stations in modern pest control. Nonetheless, and perhaps more profoundly, the processes of banishment and expurgation are both alike in a crucial way in their requirement of repeated performances. Rats here do the work of performing the ontological character, the constitution, of rat-free space.

Partly from this, the rats place is partially undecideable. Is the rat in place or out of place in the sewer? It may "originate there" (Envirocall interview source) but is it at 'home' there; is it to be allowed there; what spaces is the act of purification there working to enact? Notice how it is the technologies of governance that demand population control in sewers – performing the national (cultural) boundaries. Likewise, failure is often *produced* by rat-catching methods as part of the process of capture. Rat-catching and pest control is never *ensured*; there is the constant possibility (or threat) of rats invading protected spaces – that is a necessity for the creation of rat-free space. Here, rats are a central and essential part of the spaces that laborious practices of removal and protection aim to exclude rats from. As Matthews writes in 1898 "one should never guarantee complete removal" (Matthews pp36), or as Hogarth asks: "What is the best method of destroying rats? There is only one answer: there is no best method of destroying these vermin ... constant vigilance is the price of freedom" (1929 pp111). There never is and never will be a method for assuring the protection of space from vermin, for in doing so, such a method would cease to enact the rat *as vermin.*

Like Foucault's analysis of the carcereal system, where changes in punishment emerge as a result of wider changes in society (Foucault 1975), so

to are changes in rat capture and constitution totally connected with wider changes in human-animal co-constitution. Rats, in being always excluded, are essential to performing the character of the different spaces they are supposedly purified from. An acknowledgement of this makes great headway towards the animal geography and relational geography move that seeks 'conviviality' with urban wilds.

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